

THE BEES OF AUSTRALIA.

By T. D. A. COCKERELL.

(Continued from vol vii., part iv., p. 324.)

HALICTIDAE subfamily SPHECODINAE.

Inquiline or parasitic bees, the females without the caudal furrow of *Halictus*. In most species the abdomen is red, but some are entirely black. The basal nervure is strongly arched, as in *Halictus*. Tongue in our species very short.

Sphecodes profugus Cockerell.

Female about 9 mm. long; head and thorax black, abdomen dark chestnut red, black at apex; head large, broader than long; wings moderately dusky, stigma and nervures very dark brown. Male about 7 mm. long, much less bulky, abdomen lighter red; flagellum robust and long, the joints nodose beneath. Mackay, Queensland (Turner). Type in British Museum. Allied to a species of New Guinea (*S. biroi* Friese). *S. profugus* has been taken as far south as Brisbane (Hacker).

COLLETIDAE.

The typical genus, *Colletes*, reaches southern South America and South Africa, but is not present in Australia. Vachal in 1909 proposed a subfamily, *Diphaglossinae*, having for its type the South American genus, *Diphaglossa* Spinola. He recognised the existence of genera of this group in Australia and South America, and it may now be added that there are genera in South Africa. The ancestral or basic type of this subfamily has three cubital (submarginal) cells, but genera have evolved which possess only two. Such are *Pasiphaë* Spinola in South America, *Scapter* Lepelletier and Serville in South Africa, and *Notocolletes*, *Euryglossidia* and *Andrenopsis* in Australia.

(A.) Genera with two cubital cells.*

- Paracolletes*-like bees, with hairy head and thorax; marginal cell obtuse or truncate at end; stigma small; face of male yellow.
 *Andrenopsis* Cockerell.
- Paracolletes*-like hairy bees; male flagellum very long and slender; head and thorax black, abdomen green; male face not yellow, but densely covered with appressed hair; legs and venter of abdomen greatly modified; stigma long and narrow; marginal cell ending rather obtusely.
 *Notocolletes* Cockerell.
- More *Euryglossa*-like bees, rather slender and often small; marginal cell narrow or pointed at end; stigma large. *Euryglossidia* Cockerell.

By some mischance, in the table in Australian Zoologist, vi., p. 148, *Euryglossina* is printed in place of *Euryglossidia*. In Genera Insectorum, 1923, Meade-Waldo includes *Euryglossidia* in *Prosopidinae*, separating it from *Euryglossa* in his table by the cubital cells being both long, subequal, and the basal nervure gently arched. He gives an excellent coloured figure of *E. rectangulata*, which is the genotype. This species resembles in appearance the South African *Scapter semirufa* Cockerell, and shows no material difference in the venation and general structure of the body, ex-

* *Paracolletes abnormis* Ckl. sometimes has only two cubital cells, and the type of *P. vitrifrons* Sm. has only two cubitals.

cept that the metathorax is of a different type. It appears to be a fact that *Scapter* and *Euryglossidia*, inhabiting South Africa and Australia respectively, are very closely related, and must have had a common origin from a bee of the same general type. I interpret this as indicating that this type of bee was once widespread over the world, but now remains only in certain southern regions.

ANDRENOPSIS Cockerell.

The genus was originally based (Trans. Amer. Ent. Soc., xxxi., 1905, p. 363) on a male *A. flavorufus* in the British Museum, labelled "Australia."

Andrenopsis flavorufus Cockerell.

Male about 10.5 mm. long; mandibles (except apex), labrum, clypeus and supraclypeal area yellow; scape yellow suffused with red; hind margins of abdominal tergites broadly ferruginous; tarsi light yellow. The Australian Museum has it from Sydney, collected by C. Gibbons.

Andrenopsis velutinus Cockerell.

Kojarena, W.A. (*Nicholson*). Female about 6 mm. long; head and thorax black, abdomen black and chestnut red. (Rec. Austr. Mus., xvii., p. 212).

Andrenopsis wilsoni Rayment.

Bogong High Plains (5,000 ft.), Victoria (*F. E. Wilson*). (Proc. Roy. Soc. Victoria, xliii., 1930, p. 51). Mr. Rayment kindly sent me this insect for examination, and I noted: Male about 8 mm. long; mandibles bidentate; clypeus mainly honey colour, keeled; supraclypeal area elevated, shining; scape light yellowish ferruginous; basal nervure meeting the oblique nervulus; second cubital cell long, receiving first recurrent nervure far from base.

EURYGLOSSIDIA Cockerell.

Euryglossidia australiensis (Dalla Torre).

Described by Smith as *Scapter bicolor*, from a specimen in the collection of Sir John Lubbock. The specific name had been used by Lepeletier and Serville for an African species. Head and thorax black; abdomen ferruginous, with the base fuscous, and tergites 2 to 4 with lateral fuscous spots; tibiae and tarsi ferruginous. Transferred to *Euryglossidia* by Meade-Waldo.

Euryglossidia cyanescens Cockerell.

Kojarena, W.A. (*Nicholson*). Female about 5.5 mm. long; head and thorax black; abdomen with first three segments very bright ferruginous red, with a faint purple lustre, the second tergite with an oval black spot on each side; remaining tergites dark with a strong bluish or blue-green lustre, the apical tuft of hair black. Allied to *E. simillima*, but known by the red tibiae. Type in Australian Museum.

Euryglossidia eraduensis Cockerell.

Eradu, W.A. (*Nicholson*). Female about 9 mm. long, or rather less; dark green, the clypeus black, and the entirely dull mesothorax almost black; spur of anterior tibia with a broad lateral translucent plate, and beyond that four sharp lateral spines. Type in Australian Museum.

Euryglossidia ichneumonoides (Cockerell).

W. Australia. Male about 7 mm. long, looking like a small ichneumonid; head and thorax black, legs and abdomen yellowish ferruginous; wings hyaline. The abdomen has a purple lustre. Type in British Museum.

Euryglossidia mastersi Cockerell.

King George's Sound, W.A. (*Geo. Masters*). Female 9 mm. long; head and thorax black, abdomen chestnut red, with a purple lustre; wings reddish hyaline. Very near *E. purpurascens*, but clypeus convex, not flattened on disc; scutellum more closely punctured, with no median depression; anterior tibiae red; nervures much paler; stigma shorter. Type in Australian Museum.

Euryglossidia nigrescens Cockerell.

Geraldton and Eradu, W.A. (*Nicholson*). Male nearly 6 mm. long, very slender, with narrow abdomen and extremely long antennae; head and thorax black; abdomen very dark brown, faintly greenish, the hind margins of tergites 2 to 4 more or less pallid; wings hyaline. Female more robust; face broad, with conspicuous white hair at sides; antennae short, the flagellum clear ferruginous beneath except at end; apex of abdomen with dark fuscous hair. Type in Australian Museum.

Euryglossidia purpurascens Cockerell.

Yallingup, W.A. (*R. E. Turner*). Male about 8.5 mm. long; black, the abdomen dark rich chestnut red, suffused with purple, the basal segment dark; antennae black, extremely long. Female about 9 mm. long, with short antennae; sides of second tergite with a large dark spot. Distinguished from *E. ichneumonoides* by the brownish wings, and from *E. rectangularata* by the fuscous (instead of ferruginous) nervures. Type in British Museum.

Euryglossidia rectangularata Cockerell.

Victoria (*French*). Female about 8 mm. long; head and thorax black, quite hairy; abdomen very bright chestnut red, with a large round black spot on each side of second tergite; femora black, with the knees ferruginous; tibiae and tarsi ferruginous, more or less suffused with dusky; tegulae ferruginous; wings pale reddish. Male much more slender, the abdomen claviform, slender basally, variably suffused with black, and with a faint purple lustre; clypeus covered with white hair. Type in British Museum.

Euryglossidia simillima (Smith).

Swan River, W.A. Female with the aspect of a *Sphcodes*; head and thorax black, abdomen ferruginous; flagellum fulvous beneath; wings hyaline. The two last tergites are blue-black, the apex with black pubescence. Transferred to *Euryglossidia* by Meade-Waldo. Type in British Museum.

Euryglossidia viridescens Cockerell.

Geraldton, W.A. (*Nicholson*). Female about 6.5 mm. long; head and thorax black, the very large dullish area of metathorax slightly greenish; abdomen ferruginous, with fourth tergite and beyond dark olive green, and the red tergites with a transverse dusky subapical band; sides of second tergite with a large oval black spot; apical tuft brown. Type in Australian Museum. The black spots at sides of second tergite are equally evident in the species of the African genus *Scrapper* which have a red abdomen; for example, *S. rufiventris* (Friese).

NOTOCOLLETES Cockerell.

Notocolletes heterodoxus Cockerell.

"Gawter, D.S. Austr.," which may mean Gawler Range. Male nearly 11 mm. long; head and thorax black; abdomen dark dull blue-green; head,

thorax and abdomen with long erect very pale ochreous-tinted hair, not forming bands on abdomen; appressed hair of face shining like a plate of polished silver in certain lights; hind margin of fifth sternite elevated and greatly thickened in middle; sixth sternite with a great thickened elevation. Type in British Museum. Among the genera with three cubital cells, this most resembles *Goniocolletes*, which also has greatly modified legs in the male. There is a curious resemblance between *Notocolletes* and the South African *Parapolyglossa* Brauns, but as the details of the greatly modified legs differ conspicuously in the two genera, I suppose the modifications to have arisen independently, yet also as the expression of a tendency latent in the whole group, and in that sense ancestral.

(B.) Genera with three cubital cells.

The genera of this series are greatly in need of revision, which must be based on structural studies of both sexes of many species. F. Smith recognised a series of genera, which he named *Anthoglossa*, *Paracolletes*, *Leioproctus*, *Dasycolletes*, *Lamprocolletes*, *Stenotritus* and *Gastropsis* (*Oestropsis*, preoccupied). In 1905 I united the second, third, fourth and fifth under the name *Paracolletes*, finding that the supposed generic characters did not hold in a long series of species. *Anthoglossa* is also practically confluent with *Paracolletes*, though it represents a rather distinct group. In 1929 (Mem. Queens. Mus., p. 311) I suggested the possibility of restoring *Leioproctus* (to include *Lamprocolletes*) for the larger part of the present *Paracolletes*, characterised by the well developed stigma. I gave lists of species which would then fall in *Paracolletes* and *Leioproctus*. *Lamprocolletes* has the third cubital cell much less elongated than in *Leioproctus* proper, receiving the second recurrent nervure very near the end. This difference can hardly be considered generic. The type of *Leioproctus* is from New Zealand, but similar species occur in Australia.

In the present paper, I continue to use *Paracolletes* in the broad sense, leaving it to some future Australian student to produce a sound generic revision which we can all adopt.

Stenotritus and *Gastropsis* were not recognised as Diphaglossine or Colletid. As I stated in Ann. Mag. Nat. Hist., March, 1929, p. 358, there can now be no doubt that *Gastropsis* consists of males of *Stenotritus*. Smith placed *Stenotritus* after *Andrena*, remarking that he could not describe the tongue, as some one had extracted it from the type. The genus consists (in the female) of robust *Andrena*-like bees, the principal characters described by Smith being in the legs: "The inner spine at the apex of the posterior tibiae, as well as the single one at the apex of the anterior and intermediate pairs, toothed like a comb, and very long, bent and acute at the apex; the posterior legs furnished with a floccus and scopa." The second recurrent nervure was described as reaching the third cubital cell in the middle. *Gastropsis*, based on a male, was noteworthy for the conical abdomen, giving the insect the appearance of a bot-fly. In 1904 (Canad. Entomologist, p. 304) I discussed *Gastropsis*, remarking on the broad second cubital cell and obsolete stigma (characters also of *Anthoglossa plumata*); third antennal joint very long; face narrow, with large eyes; area of meta-thorax very long and narrow; abdomen very hairy, rather tapering, with two terminal spines, which are sometimes folded back, and then not easily seen. The basal nervure falls far short of the nervulus. I remarked on the general resemblance to the Peruvian *Megacilissa vestita* Smith, but quite erroneously supposed the genus to be related to *Meliturga*, which resembles it in the abdominal spines of the male, in the eyes (though in *meliturga* male they converge above) and the long third antennal joint.

The genera may be divided into three tribes, Stenotritini, Phenacolletini and Paracolletini.

STENOTRITINI.

Stenotritus Smith.

Stenotritus elegans Smith.

Sydney, N.S.W. The type of the genus. Head and thorax black, abdomen greenish; hair at apex of abdomen rufo-fulvous. Last antennal joint of female compressed, so as to appear pointed from one direction, rounded from another. Area of metathorax produced apically, so as to form a broad band passing down metathorax. A female in bad condition, from Tennant's Creek, Central Australia (Field) shows olive green tints on the mesothorax in front, and the first recurrent nervure joins second cubital cell a little before the middle, instead of a little beyond it as in type *S. elegans*. For the present this form is regarded as a variety of *S. elegans*, but good material might show it to be a distinct species.

Stenotritus elegantior Cockerell.

Queensland, probably collected by Turner. Female about 16 mm. long; similar to *S. elegans*, but head and thorax above metallic, with rich purple and green tints; hair of face and front fulvous, of cheeks white, contrasting; scape entirely bright ferruginous.

Stenotritus glauerti (Rayment).

Yorkrakine, W.A. Female 21 mm. long; peacock green, with peacock-blue about the head; scape royal-blue; no fringe on abdominal tergites.

Stenotritus nigrescens (Friese).

Central Australia, collected by the famous botanist, v. Müller. Male 15 mm. long, like *S. pubescens*, but thorax with a broad black transverse band; tergites 2 to 5 blackish-brown haired; legs entirely blackish-brown. Friese remarks on its great resemblance to *Meliturga clavicornis*.

Stenotritus pubescens (Smith).

Champion Bay, W.A. (H. Du Boulay) and S. Australia. The type of *Gastropsis*. Black, densely clothed with ochraceous pubescence; legs pale ferruginous, the middle femora behind, and the hind femora, dark fuscous or black; abdomen submetallic.

Stenotritus pubescens splendidus (Rayment).

Geraldton, W.A. Male 14.5 mm. long; antennae entirely pale ferruginous; abdomen broader, the tergites and thorax completely hidden under excessively dense pale greenish-buff hair; legs brown.

Stenotritus smaragdinus Smith.

Champion Bay, W.A. (H. Du Boulay). Like a very large, bright green *Andrena*. Female with third antennal joint very long; mesothorax with much white plumose hair; area of metathorax reduced to a very minute basal nearly equilateral triangle (thus very different from that of *S. elegans*); second cubital cell extremely broad. Type in British Museum.

Subgenus MELITRIBUS Rayment.

This includes species in which the large eyes of the males converge above. For a full description see Entomologist, January, 1906, p. 15. Rayment, in Proc. Roy. Soc. Victoria, 1930, p. 61, gives *S. victoriae* as the type of the genus, but in the previous volume, p. 218, issued earlier in the same year, he cites *M. greavesi*, and this must hold. He gives a good plate showing *M. greavesi* and various details of its structure.

Stenotritus (Melitribus) greavesi (Rayment).

Bungulla, W.A., on flowers of *Callistemon* (T. Greaves). Male about 16 mm. long; "the white hair of the metathorax and the first and second abdominal segments is combined as a wide median band across the black shining body, and is suggestive of *Megachile lucidiventris*."

Stenotritus (Melitribus) victoriae (Cockerell).

South Australia and Victoria. Type in British Museum. Male about 15.5 mm. long; black, shining, and punctured; face very narrow, covered with long light yellow hair; anterior margin of clypeus with two shining dentiform processes; area of metathorax finely granular, triangular, with all the angles greatly produced and acute; hair of thorax yellowish white, except on hind part of mesothorax and scutellum, where it is black or fuscous; apical plate of abdomen truncate. A supposed variety from W. Australia (Froggatt) has the abdomen and anterior part of mesothorax with a greenish lustre; mesothorax with much black hair, except on the anterior third, where it abruptly changes to yellowish white.

Stenotritus (Melitribus) victoriae rufocollaris (Cockerell).

Mallee, V. (Davey). Male about 14 mm. long; face and front covered with bright ferruginous hair; first three antennal joints clear ferruginous; mesothorax and scutellum somewhat metallic; anterior part of mesothorax with bright fox-red hair, abruptly separated from the black of the hinder part.

Subgenus *Ctenocolletes* Cockerell.

Female large; anterior and middle tibial spurs with very long spines, on anterior spurs well spaced (not small and crowded as in *S. elegans*); stigma practically obsolete; basal nervure falling far short of nervulus; second cubital cell quadrate, extremely broad, much broader than high, receiving first recurrent nervure toward the base. (Ann. Mag. Nat. Hist., March, 1929, p. 358.).

Stenotritus (Ctenocolletes) nicholsoni Cockerell.

Kojarena, W.A. Nicholson). Type in Australian Museum. Female about 20 mm. long; black, quite without metallic tints; face covered with white hair; thorax densely covered with long hair, clear white on mesopleura and tubercles, on dorsum very pale ochreous, with two transverse black bands; tergites 2 to 4 with fulvous bands; apex of abdomen with copper-red hair. The two transverse bands on thorax resemble those of *Caupolicana hirsuta* Spinola, from Chile.

PHENACOLLETINI.

PHENACOLLETES Cockerell.

Bees closely resembling wasps allied to *Tachytes*; pubescence very short and like that of a wasp, the plumosity only visible under the compound microscope; abdomen free from hair, except a very fine pruinosity, and shaped like that of a *Tachytes* or Bembicid; stigma small and narrow; first cubital cell, on cubital nervure, at least as long as the other two combined; second cubital cell almost square, receiving first recurrent nervure at end of its first third; basal nervure falling slightly basad of nervulus.

Phenacolletes mimus Cockerell.

Turtle Bay. N.W. Australia (J. J. Walker). Male about 14 mm. long; black, with the large scutellum red varying to black; labrum with a shining elevated C.; face broad, the eyes practically parallel, slightly diverging be-

low; flagellum thick, the middle joints broader than long; area of metathorax large, shining, with a deep basal pit.

PARACOLLETINI.

Cladocerapis Cockerell.

Allied to *Paracolletes*, but male antennae with joints of flagellum having processes directed forward, on upper side, and large branches bearing little filament-like processes, often forked, on under side; area of metathorax smooth and shining, with an obscure transverse ridge; basal nervure meeting nervulus; first recurrent nervure joining middle of second cubital cell.

Cladocerapis bipectinatus (Smith).

Sydney, N.S.W. Male black, shining; wings hyaline; legs obscurely testaceous; abdomen obscurely metallic. Hacker records it from Queensland (Caloundra and Brisbane Island).

TRICHOLLETES Cockerell.

Allied to *Paracolletes*, but with conspicuously hairy eyes. The females collect pollen from *Daviesia*.

Trichocolletes daviesiae Rayment.

Heathmont, V., visiting *Daviesia* (Rayment). Hair of face very dense, reddish-gold; abdominal bands glistening golden; antennae black, with red scape.

Trichocolletes dowerinensis Rayment.

Dowerin, W.A., visiting *Daviesia* (Rayment). A narrow species; abdomen coarsely punctured, tergites with pallid margins and long black hair, except on first two tergites; where it is dark fulvous; clypeus and labrum fulvous.

Trichocolletes nigroclypeatus Rayment.

Daylesford, Victoria, visiting *Daviesia* (Rayment). Female about 12.3 mm. long; clypeus naked, with a tuft of hair at each side. The male is hard to separate from *T. venustus*, but the genitalia are different.

Trichocolletes tenuiculus Rayment.

Canowindra, N.S.W. (M. Dwyer). Male about 12 mm. long, female 14 mm.; scape blackish; a tuft of hair in middle of clypeus; abdominal bands very dull and narrow. The tibiae are ferruginous. Males of this and *T. daviesiae* visit *Hardenbergia*.

Trichocolletes venustus (Smith).

Lower Plenty, S.A. Female black, the abdomen with a silky gloss; face densely clothed with long pale golden hair; scape red; tibiae red; margins of tergites with narrow golden bands, thinly hairy. It is also known from Queensland; a specimen from Hobart, Tasmania, lacks the first intercubitus on the right side. Rayment records it from Western Australia. It visits *Daviesia*.

Rayment (Victorian Naturalist, December, 1929) figures the head and genitalia of *T. venustus* and the head of *T. nigroclypeatus*.

GONIOCOLLETES Cockerell.

Paracolletes-like bees, with the male legs excessively modified; anterior tarsi with the basitarsus narrow, pale and flat, more than twice as long as the rest of the tarsus; middle femora with the lower half beneath excavated, as though a large piece had been bitten out, the basal end of the excavation

furnished with a large tooth; hind tibiae strongly bent, with only one spur visible, that small and pale; hind basitarsi with a tooth-like prominence beneath.

The female is not known, but *Paracolletes ruficornis* (Smith) shows several points of similarity.

Goniocolletes morsus Cockerell.

New South Wales. Type in American Museum of Natural History. Male about 13 mm. long; black, clothed with long yellow hair, dense and golden on the face; face broad; lower edge of clypeus broadly whitish; scape black, flagellum red, blackish above at base; wings yellowish; tarsi pellucid yellowish; very broad margins of tergites pellucid shining testaceous. The Australian Museum has it from S. Australia. It is the type of the genus. *Dasycolletes curvipes* Friese is a synonym.

Goniocolletes pallidus Cockerell.

Hermannsburg, Central Australia (H. J. Hillier). Type in British Museum. Male about 11.5 mm. long; abdomen light ferruginous, hind margins of tergites broadly hyaline; flagellum dusky red, almost black above.

NODOCOLLETES Rayment.

Rayment (Jour. Roy. Soc. W. Australia, xvii, p. 164) has proposed this genus to include those species of *Paracolletes* (in the broad sense) which have a dentate process on the postscutellum. The stigma is inconspicuous. I have catalogued the species below under *Paracolletes*; they are the following:—

N. dentatus Rayment (type of genus), *N. subdentatus* Rayment, *N. diodontus* (Ckll.), *N. vigilans* (Smith), as listed by Rayment. The postscutellum has a stout sharp spine in *Paracolletes phanerodontus* Ckll., and in *P. subvigilans* Ckll. it has a very prominent obtuse tubercle, which is not bifid. *P. sermaculatus* Ckll. has a mammiform median tubercle on postscutellum. *P. microdontus* Ckll. has a small but distinct tubercle on postscutellum.

ANTHOGLOSSA Smith.

Smith based this genus on *A. plumata*; six species are listed in Hacker's Catalogue. *A. plumata* (female) is a comparatively large bee, with the second cubital cell extremely broad, not contracted above; pygidial plate large; clypeus densely punctured; mandibles elbowed outward; abdomen with hair-bands.

Smith later added *A. sericea* (female), which has the second cubital cell greatly contracted above; clypeus shining, with widely separated punctures; mandibles ordinary; hind margins of tergites white, without hair-bands.

The male in the British Museum ascribed to *A. plumata* has the same venation as the female, but the hind margins of tergites white as in *A. sericea*. It has the face densely covered with long bright orange-red hair, and the scape and hind tibiae and tarsi red.

It has become increasingly difficult to recognise *Anthoglossa* as a genus, but when the genera are revised, it may be found to stand, with a modified definition.

Anthoglossa aureotincta Cockerell.

Perth (H. W. J. Turner). Type in British Museum. Female about 13 mm. long; closely allied to *A. sericea*, but differing by the antennae (which are black, the flagellum obscurely brownish beneath), dark brown tegulae,

black legs and pale chocolate coloured apical tuft of abdomen. The hind margins of first four tergites are pale orange-golden.

Anthoglossa cygni Cockerell.

Swan River. Type in British Museum. Female about 15.5 mm. long; abdomen without bands; hair on fifth and apical tergites brown-black.

Anthoglossa dives Cockerell.

Yallingup, W.A. (Rowland Turner). Type in British Museum. Female about 16 mm. long; male 16 mm., the face densely covered with very bright golden-fulvous hair. Distinguished (female) from *A. aureotincta* by being larger, with largely red legs. Both are separated from *A. hackeri* by the golden band on first tergite.

Anthoglossa hackeri Cockerell.

Mt. Tambourine, Q. (Hacker). Female about 14 mm. long, structurally like *A. aureotincta*, but differing by the absence of a band on first tergite, dark hair of upper part of head, and dusky wings. Antennae and legs black.

Anthoglossa plumata Smith.

W. Australia. Type in British Museum.

Anthoglossa sericea Smith.

Described from a female in the collection of Sir John Lubbock. My account above is based on the specimen in the British Museum. Smith's description includes the following items: Sides of the face with a line of snow-white pubescence, on the vertex it is slightly fuscous; anterior margin of the clypeus and the mandibles rufo-piceous, the tips of the latter black; flagellum fulvous beneath; tibiae and tarsi rufo-piceous; tegulae pale testaceous; wings subhyaline; abdomen covered with a short changeable reddish pile, apical margins of the tergites narrowly testaceous; fifth tergite fringed with fulvous pubescence, as well as the sides of sixth, the segment itself being rufo-testaceous.

PARACOLLETES Smith.

In Trans. Amer. Ent. Soc., xxxi. (1905), pp. 344-349, I have given a table based on Smith's types in the British Museum, I concluded that the venational characters supposed to distinguish several genera did not hold good. The bees look like *Colletes* or *Andrena*. The hind spur of hind tibia may be pectinate with rather numerous fine long teeth, as in *P.* (or *Dasycolletes*) *rubellus*; or may be minutely ciliate, at first glance appearing simple, as in *P.* (or *Dasycolletes*) *metallicus*. These differences in the spur parallel those found in *Halictus*.

In the following table I have included species of *Trichocolletes* and *Anthoglossa*.

- | | | |
|--|---|----|
| 1. Eyes hairy; hind margins of abdominal tergites pallid; male with face covered with golden hair, and scape clear red; females with white hair on face, pale fulvous on vertex; first cubital cell short as in <i>Anthoglossa</i> | <i>Trichocolletes venustus</i> (Smith).
(The eyes also show hair in <i>P. thornleighensis</i> Ckll.) | 2. |
| 2. Male legs greatly deformed; middle femora with a large tooth below, hind tibiae strongly bent; face covered with golden hair; scape black, but flagellum red beneath | <i>Gonicolletes morsus</i> Ckll. (See also <i>G. pallidus</i> Ckll.) | 3. |
| Male legs not thus deformed | | |

3. First cubital cell below relatively short, not or hardly as long as 2 plus 3; second cubital broad; abdomen with broad golden tegumentary bands 4.
 (Very large, about 17 mm. long, with bright red moss-like hair on thorax above *maximus* Ckll.)
 First cubital cell longer, often much longer than 2 plus 3. 5.
4. Face with white hair; female (Queensland) . . *Anthoglossa hackeri* Ckll.
 Face with bright orange hair; last antennal joint broad and flat; male (W. Australia) *Anthoglossa dives* Ckll.
 (By analogy with *T. venustus*, these might be sexes of one species, but *hackeri* has basal nervure falling conspicuously short of nervulus, while in *dives* it meets nervulus.)
 The following supplementary table of *Anthoglossa* will be useful:
 Larger; second cubital cell extremely broad, not contracted above; clypeus densely punctured; abdomen with hair-bands (female). Male with face covered with bright orange red hair; scape red; hind margins of tergites white *A. plumata* Smith.
 Abdomen of female without hair bands 1.
1. Second cubital cell greatly contracted above; clypeus shining, with widely separated punctures; mandibles ordinary (strongly elbowed outward in female *plumata*); hind margins of abdominal tergites white *A. sericea* Smith.
 Differs by having hair on fifth and apical tergites brown-black; female about 15.5 mm. long (Swan R.) *A. cygni* Ckll.
 (See also *A. aureotincta* Ckll., female about 13 mm. long; and *Paracolletes marginatus* Smith appears to be allied.)
5. Black species, with hind margins of tergites evidently discolored. (See also *P. carinatifrons* Ckll.) 6.
 Otherwise 11.
6. Stigma subobsolete 7.
 Stigma well developed 8.
7. Abdomen with narrow pale golden bands; hind tibiae and tarsi of male red; face of male with golden hair, of female with white; first cubital cell relatively short, suggesting *Anthoglossa*; third cubital long, produced . . *Paracolletes* (or *Anthoglossa*) *marginatus* Smith.
 (Here also may be sought:
 Scape swollen, clear red; flagellum short and thick; face densely covered with red-gold hairs *P.* (or *A.*) *chrysostomus* Ckll.
 Caudal fibria fulvous; abdominal bands white; clypeus highly polished, with few punctures *P.* (or *A.*) *marginatus lucidus* Ckll.
P. m. lucidus differs from *A. sericea* Sm. by the dark tegulae, and absence of "short changeable reddish pile" covering abdomen; but it agrees with *sericea* in the fulvous caudal tuft, and smooth shining clypeus with reddish margin.)
 Abdomen with broad pale golden tegumentary bands; third cubital cell not elongated; male, the long flagellum red beneath
 *P. rebellis* Ckll.
8. Hair of head and thorax bright fox-red; stigma clear red; hind tibiae (female) with an extremely large and broad pale fulvous scopa *waterhousei* Ckll.
 Hair of head and thorax not thus bright, or not red; smaller species 9.
9. Second cubital cell parallel-sided; female flagellum very short
 *helichrysi* Ckll.

- Second cubital cell narrowed above 10.
10. Third cubital cell much elongated; sides of front above finely punctured, not polished *sigillatus* Ckll.
(An allied but smaller species is *P. nomiaeformis* Ckll.)
Third cubital cell little elongated; sides of front above smooth and polished *thornleighensis* Ckll.
11. Abdomen red, or at least in large part 12.
Abdomen not red 20.
12. Stigma subobsolete; mostly larger species 13.
Stigma well developed 15.
13. Clypeus shining black; mandibles red, black at end; female (W. Australia) *erythrurus* Ckll.
Clypeus more or less yellow; males 14.
14. Yellow on clypeus trilobed; scape black
. *nigrocinctus* Ckll. (*Tenuicinctus* Ckll.)
Clypeus all yellow; scape red *callander* Ckll.
(Abdomen black and red, see *rufibasis* Ckll.)
15. Scutellum with much black hair; lateral black spots on second tergite (Victoria) *platycephalus* Ckll.
Scutellum without black hair 16.
16. Face densely covered with golden hair, hiding the surface 17.
Face not covered with golden hair 18.
17. Second cubital cell parallel-sided, receiving recurrent nervure near base; flagellum red at tip (Victoria) *imbriatus* Ckll.
Second cubital cell narrowed above, receiving recurrent nervure not so near base (N.S.W.) *imbriatus* Ckll., variety.
18. Male; flagellum long, all black, crenulate *platycephalus* Ckll.
Females; venter of abdomen with pure white hair 19.
19. Thorax above with yellow hair; front and sides of face with white hair; clypeus with a median keel (S.A.) *gallipes* Ckll.
Thorax with white hair; clypeus not keeled (N.S.W.). *truncatulus* Ckll.
(See also:
Thorax above with rich fulvous hair; front with fulvous hair, sides of face with very pale yellowish hair; clypeus very coarsely rugose, not keeled; end of abdomen with very dark fuscous hair (all pale in *gallipes*); abdomen below with broad creamy-white bands; length about 14 mm. female of *imbriatus* Ckll.
Clypeus shining, very coarsely punctured, with no median keel; hair at apex of abdomen light brown; flagellum bright red beneath except at base; scopa of hind legs white
. *abdominalis* Smith (female).
Abdomen dusky chestnut with purple suffusion; female about 7.5 mm. long *cyaneorufus* Ckll.)
(*P. rufoaeneus* Friese is allied.)
20. Region of scutellum covered with a dense patch of orange hair; black species, with very large stigma (Kuranda) . . *flavomaculatus* Ckll.
Without such a patch of orange hair 21.
21. Sides of thorax above with large pear-shaped patches of dense felt-like orange hair; black species, with large stigma; female
. *irroratus* Smith.
Thorax not thus ornamented 22.

22. Without blue or green tints (a suggestion of metallic colour on abdomen of *leai*, *tuberculatus*, *tuberculatus insularis*, and *metallescens*) 23.
 Abdomen at least partly metallic 55.
23. Stigma subobsolete; comparatively large, robust species. 24.
 Stigma distinctly developed or large 28.
24. Flagellum entirely ferruginous; eyes green; thorax with fulvous hair; male *ferricornis* Ckll.
 Flagellum not, or not all, red; eyes not green 25.
25. Abdomen with three narrow silver-white hair-bands; female *tenuicinctus* Ckll.
 (*P. advena* Sm. is allied.)
 Abdomen without such bands 26.
26. Anterior tibiae black, dark red on inner face; apical hair of abdomen pale grey; female *latifrons* Ckll.
 Anterior tibiae red 27.
27. Female; very robust; hair of thorax above pale fulvous. *crassipes* Smith.
 Male; less robust *crassipes* Smith.
 (See here also *P. robustus* Ckll., which runs to *tenuicinctus*, but apical plate of female abdomen much broader, with no median raised line; hair of thorax above white tipped with black.)
28. End of abdomen broadly clothed with extremely bright orange-red hair *callurus* Ckll.
 (The variety *nigrior* Ckll. has no white collar on mesothorax in front.)
 End of abdomen not thus ornamented 29.
29. (Tegulae very bright apricot colour; but abdomen distinctly metallic *launcestonensis* Ckll.)
 Tegulae not so coloured 30.
30. Females 31.
 Males 40.
31. Abdomen with distinct white or whitish hair-bands 32.
 (Small, with thin bands on tergites 3 and 4 . . . *nicholsoni* Ckll.)
 Abdomen without such bands 35.
32. Clypeus with a strong median keel; hair of fifth tergite pale fulvous *andreniformis* Ckll.
 Clypeus without a keel 33.
33. Mandibles bright red in middle, and tip of flagellum red; small species *halictiformis* Ckll.
 Mandibles not thus red; larger species 34.
34. Larger and more robust . *advena* Smith (*worsfoldi* Ckll. is a subspecies.)
 Smaller and less robust, but very closely allied; abdomen faintly green (Tasmania) *subviridis* Ckll.
 (See also *P. albovittatus* Ckll., very shiny; white hair-bands broad.)
35. Robust species; hair of head and thorax above fulvous with admixture of black; tubercles with conspicuous light fulvous hair; stigma small *fervidus subdolosus* Ckll.
 Otherwise; hair of thorax above not thus fulvous 36.
36. First recurrent nervure joins second cubital cell about middle; scutellum has black hair 37.
 (The scutellum has white hair in *P. nicholsoni* Ckll.)
 First recurrent nervure joins second cubital cell much before middle 39.

37. (Abdomen hardly punctured, more or less metallic . *metallescens* Ckll.)
(It is hardly punctured, dull, not metallic, in *P. philonesus* Ckll., about
9.5 mm. long, from Lord Howe Island.)
Abdomen distinctly punctured, not metallic 38.
38. Clypeus flat and shining
. *incanescens* Ckll. (compare also *speculiferus* Ckll.)
Area of metathorax transversely striate; hind margins of tergites
reddened *carinatifrons* Ckll.
39. Postscutellum with a tubercle
. *tuberculatus* Ckll. and subsp. *insularis* Ckll.)
(See also *P. opaculus* Ckll., clypeus dull and regulose.)
Postscutellum without a tubercle *nitidulus* Ckll. and *leai* Ckll.
(*P. melanurus* Ckll., rather resembling a smallish black *Halictus*, has
somewhat the aspect of *P. nitidulus*, but venation more as *P.*
incanescens, with marginal cell much elongated.)
40. Flagellum light orange ferruginous beneath; very small species with
very clear wings; the type has only two cubital cells, but another
specimen has the usual three *abnormis* Ckll.
(Compare here *P. aurescens* Ckll. length about 11 mm.) and *P. auri-*
frons Smith.)
Flagellum dark 41.
41. Flagellum strongly crenulated, like an ibex horn 42.
Flagellum ordinary 43.
42. Rather large species, with dusky wings *sexmaculatus* Ckll.
Very small species, with almost clear wings *ibex* Ckll.
(*P. atronitens* Ckll., if sought here, is of the larger size, with almost
clear wings.)
43. Very small species 44.
Medium sized species 45.
44. Mandibles red; thorax with white hair above and below; apical tergites
with broad reddish margins *minutus* Ckll.
Mandibles dark *pusillus* Ckll.
Mandibles red; flagellum dark, very short *tropicalis* Ckll.
45. Clypeus polished and shining; first recurrent nervure joining second
cubital cell at or near middle 46.
Clypeus not polished, or wholly hidden by hair 47.
46. Wings strongly brownish; much long black hair on front, vertex, and
thoracic dorsum *obscurus* Smith.
Wings clear; hair of thorax above white; clypeus with a low median
ridge *incanescens* Ckll.
(Compare also *P. speculiferus* Ckll. and *P. perpolitus* Ckll.)
47. Sides of face with triangular patches of dense silvery white hair; first
recurrent much before middle of second cubital cell. 48.
Sides of face without such patches 49.
48. Larger; anterior femora black above; tubercles tufted with fulvous
hair *leai* Ckll.
Smaller; anterior femora light red above; tubercles fringed with white
hair *nitidulus* Ckll.
49. Face and front densely covered with silver-white hair (W.
Australia) *argentifrons* Smith.
Face and front not thus covered with white hair 50.
50. Sides of face with black hair, middle of face with long white hair
(New Zealand) 51.

- Sides of face without black hair, or if some blackish, face with ochraceous hair 52.
51. Middle of front shining *monticola* Ckll.
Middle of front dull *hudsoni* Ckll.
52. Face with white hair; vertex with long black hair; second cubital cell very broad below, receiving recurrent nervure in middle (W. Australia) *atronitens* Ckll.
Face with pale yellowish or fulvous hair 53.
53. Anterior tibiae pale ferruginous in front; face and front entirely covered with pale yellow hair
euphenax Ckll. (according to Rayment, this is the male of *P. advena* Smith.)
Anterior tibiae not ferruginous in front 54.
54. Larger (anterior wing almost 9 mm.), wings brownish
. *nigrofulvus* Ckll.
Smaller; wings not brownish *thornleighensis* Ckll.
(Compare here *P. rudissimus* Ckll., with tubercle on postscutellum, and mesothorax and scutellum dull, with sculpture like *P. rudis* Ckll., and margins of tergites brown.)
55. Thorax black, but abdomen more or less metallic 56.
Thorax and abdomen metallic 76.
Thorax partly black, partly metallic; head metallic; abdomen green banded; postscutellum with a bidentate process
. *diodontus* Ckll. (*vigilans* Smith is allied.)
56. Stigma obsolete; large species; male *crassipes* Smith.
Stigma well developed 57.
57. Tegulae bright apricot colour; female *launcestonensis* Ckll.
Tegulae not thus coloured 58.
58. Males 59.
(cf. also *providus* Sm., about 7 mm. long.)
Females 66.
59. Hind tibiae and tarsi light ferruginous *providellus bacchalis* Ckll.
(This is very small; the much larger *P. castaneipes* has face covered with appressed silver white hair.)
Hind tibiae and tarsi black, or (*castaneipes*) deep chestnut red, or somewhat reddish 60.
60. Face covered with long black hair 61.
Face with light hair 62.
61. Head large, clypeus polished (Tasmania) *chalybeatus* (Erichson)
(My *chalybeatus* and *obscurus* males, both from Mt. Wellington, are certainly one species.)
Head small, clypeus dullish (New Zealand) *vestitus* Smith.
62. All the tibiae dark chestnut red; face covered with appressed silvery hair *castaneipes* Ckll.
(Compare here *P. helmsi* Ckll., face with long outstanding hair, and *P. semiviridis* Ckll.)
Tibiae not thus red 63.
63. Sides of face with triangular patches of silver-white tomentum (Australia) 64.
Sides of face without such patches (New Zealand) 65.
64. Postscutellum tuberculate; abdomen bluish *tuberculatus* Ckll.
Postscutellum not tuberculate; abdomen not bluish; rather larger species, face with long white hair, vertex with black hair. *leai* Ckll.

- (These two species are very closely allied. They have the first recurrent nervure joining second cubital cell well toward base; hind margins of tergites reddish, with purplish tints.)
65. Abdomen greenish tinged; female antennae testaceous beneath *metallicus* Smith.
Abdomen black *boltoni* Ckll.
66. Large species, with brilliant golden-green abdomen, and red hair on thorax above *megachalceus* Ckll.
Smaller, quite different species 67.
67. Second cubital cell receiving recurrent nervure conspicuously before middle 68.
Second cubital cell receiving recurrent nervure at middle, or *Viridicinctus* var.) distinctly beyond 70.
68. Large robust species; wings strongly brownish; head and thorax above with much black hair; face very broad; clypeus well punctured; postscutellum with a spine (W. Australia) *subvigilans* Ckll.
(Similar, but with steel blue abdomen . . . *phanerodontus* Ckll.)
Smaller, less robust species 69.
69. Postscutellum with a sharp tubercle *tuberculatus* Ckll.
Postscutellum without a tubercle; clypeus with a median ridge; mesothorax highly polished on disc (punctured and not thus polished in *tuberculatus*) *leai* Ckll.
70. Wings strongly brownish; head and thorax above with much black hair; abdomen hardly metallic *metallescens* Ckll.
Wings clear, or of slightly brown (*maorium*), abdomen very distinctly green 71.
(Compare here *P. providus* Smith, hair at apex of abdomen white at sides, instead of all black or dark sooty.)
71. Scutellum entirely covered with black hair (New Zealand) 72.
Scutellum with dark and light hair (Australia) 73.
72. Clypeus with a median ridge, and a sulcus on each side of it
. *maorium* Ckll.
Clypeus ordinary *boltoni* Ckll.
73. A well defined patch of whitish tomentum, angulate mesad, at sides of mesothorax in front of tegulae *humerosus cyanurus* Ckll.
No such patches of tomentum 74.
74. Abdomen dullish; sides of second tergite without visible punctures under a lens; stigma clear ferruginous; rather small species
. *viridicinctus* Ckll., variety.
(*P. amabilis* Smith is allied. *P. pavonellus* Ckll. also falls here, but has abdomen peacock green, hind tibiae and tarsi red, hind tibial scopa pale clear reddish; it is much smaller than *P. boroniae*.)
Abdomen more shining; sides of second tergite visibly punctured under a lens 75.
75. A tuft of dull fulvous hair in front of each tegula *hackeri* Ckll.
No such tufts; abdomen more polished, oily-appearing, not so strongly punctured *providus* Smith.
(*P. versicolor* Smith resembles *providus*; it has a narrower abdomen.)
(*P. chalybeatus* (Erichson) was considered by me to be *P. providus*, but it is not Erichson's species as understood by Smith. A specimen determined as *P. chalybeatus* does not appear to differ from *P. obscurus*. Erichson's description is unsatisfactory.)

76. Apex of abdomen with bright orange-ferruginous hair; abdomen brilliantly coloured; stigma well developed
 *turneri* Ckll. (compare also *elegans* Smith.)
77. Apex of abdomen without such hair 77.
 Abdomen splendidly purple; small species; clypeus black, sides of face and front green *ornatissimus* Ckll.
 Abdomen pale rosy purple, with golden tints; stigma light ferruginous *semipurpureus frenchi* Ckll.
 Abdomen otherwise coloured 78.
78. Tarsi clear ferruginous 79.
 Tarsi not thus red (type of male *bicolor* has hind legs partly red) 80.
79. Abdomen golden green (Mackay)
 *cupreus semipurpureus* Ckll., variety a. (1910).
 Abdomen dark blue green (N.S.W.) *cupreus semipurpureus* Ckll.
 (This species appears very variable, and is probably composite. The type of *semipurpureus* has the abdomen brilliant crimson-purple. See here also *P. amabilis* Smith, thorax above with short fulvous hair; abdomen green; legs partly red. *P. amabilis* var. *rufipes* Ckll., male, has the hind femora and all tibiae and tarsi red.)
80. Males 81.
 Females 83.
81. Second cubital cell receiving recurrent nervure well before middle; small species with strongly punctured shining green mesothorax
 *caeruleotinctus* Ckll.
 (Rather large species with rough blue mesothorax, and stout spine on postscutellum *dentiger* Ckll.)
 Second cubital cell receiving recurrent nervure at or near middle; mesothorax darker and bluer 82.
82. Sides of face steel blue; tegulae black *carinatus* Smith.
 Sides of face green; tegulae fulvous (Swan R.)
 *plumosus* Smith (*bicolor* Smith)
 The difference in tegulae is more apparent in the females. In Trans. Amer. Ent. Soc., 1910, I had:
 Abdomen broader, shining steel blue *plumosus* Smith.
 Abdomen narrower, duller, dark purple *bicolor* Smith, var. a.
P. bicolor var. a. is separated from *P. plumosellus* Ckll. by the abundant black hair on vertex, scutellum and hind part of mesothorax. *P. plumosellus* has the legs very dark reddish; hair of head and thorax abundant, dull white, with a little yellowish tint, on scutellum greyish; antennae wholly dark; abdomen with strong purple lustre, hind margins of tergites dark reddish.
P. melbournensis Ckll. (male from Ararat, V.) is very like *plumosus*, but hair of head and thorax strongly fulvous tinted, black on vertex and disc of thorax; face (including clypeus) green; abdomen green.
83. Abdomen olive green or golden green 84.
 Abdomen dark or steel blue, or (*carinatus*) blue green 87.
84. Hair of mesothorax fulvous; smallish species 85.
 Hair of mesothorax at least largely dark or black 86.
85. Scutellum black; abdomen golden green *mimulus* Ckll.
 Scutellum green *melbournensis* Ckll., var. (or ? *mimulus* var.)
86. Smaller; hair of mesothorax partly fulvous; wings paler
 *melbournensis* Ckll.

- Larger; hair of mesothorax black; wings darker .. *sexmaculatus* Ckll.
87. Postscutellum with a conspicuous dentiform or spiniform tubercle .. 88.
 .. (P. *vigilans* Smith has a bidentate process.)
 Postscutellum without such a tubercle .. 89.
88. Larger; clypeus little metallic, extremely rough; a conspicuous band of white hair between scutellum and mesothorax .. *dentiger* Ckll.
 (A little metallic colour on thorax; distinguished from *dentiger* by the smooth polished abdomen .. *phanerodontus* Ckll.)
 Smaller; clypeus strongly metallic; abdomen very brilliant .. *megadontus* Ckll.
89. Head and thorax green, abdomen purple; basal nervure joins nervulus; stigma narrow and lanceolate .. *plumosus* Sm. (*bicolor* Sm.).
 Abdomen shining dark green; metathorax transversely carinate .. *carinatus* Smith.

The following table is based on specimens in the Australian Museum:—

- | | |
|---|-----|
| Abdomen banded, red and black | 1. |
| Abdomen otherwise | 2. |
| 1. Very small; only two cubital cells <i>Andrenopsis velutinus</i> Ckll. | |
| Three cubital cells; face with orange hair <i>P. rufibasis</i> Ckll. | |
| 2. Fifth tergite densely covered with bright light red hair; thorax dorsally with short black hair <i>callurus nigrion</i> Ckll. | |
| End of abdomen otherwise | 3. |
| 3. Face densely covered with orange or fulvous hair | 4. |
| Face not so covered | 5. |
| 4. Scape swollen, clear red <i>chrysostomus</i> Ckll. | |
| Scape red, not swollen; all tibiae red <i>marginatus</i> Smith, male. | |
| Scape black, flagellum red beneath <i>velutinus</i> Ckll. | |
| 5. Abdomen metallic | 6. |
| (With a dense patch of yellowish hair at each side of scutellum <i>bicristatus</i> Ckll.) | |
| Abdomen not metallic | 14. |
| 6. Wings dilute fuliginous except at base; second cubital cell receiving recurrent nervure before middle; thorax very slightly metallic; postscutellum with a bidentate process; scopa of hind tibiae black behind and pure white in front <i>diodontus</i> Ckll. | |
| (Abdomen faintly green, see <i>opaculus</i> Ckll.) | |
| Wings not thus fuliginous, or if moderately so, first recurrent nervure joins second cubital cell much nearer base | 7. |
| 7. Thorax metallic | 8. |
| (Robust, with clear red tegulae; abdomen little metallic <i>nigroclypeatus hardyi</i> Ckll.) | |
| Thorax black | 10. |
| 8. Postscutellum with a long spine <i>dentiger</i> Ckll. | |
| Postscutellum without a spine | 9. |
| 9. Robust, with coarse black hair on thorax above <i>carinatus</i> Smith. | |
| At least some light hair on thorax above <i>plumosus</i> Smith. | |
| 10. Abdomen yellowish green, dorsally with long hair, hind margins of tergites pallid <i>megachalceus</i> Ckll. | |
| Abdomen not thus hairy | 11. |
| 11. Male; hind basitarsi long, red <i>helmsi</i> Ckll. | |
| Females | 12. |

12. Hind tibiae clear red *pavonellus* Ckll.
 Hind tibiae black 13.
13. Larger (about 14.5 mm.); second tergite polished and hardly punctured at sides *phanerodontus* Ckll.
 Smaller; second tergite finely and closely punctured at sides *chalybeatus* Erichson.
14. Female; very small; hind tibial scopa loose, all white; second cubital cell small and narrow *nicholsoni* Ckll.
 Larger, or else males 15.
15. Males with ibex-like antennae *ibex* Ckll.
 Otherwise 16.
16. Very small male; anterior legs partly red *pusillus* Ckll.
 Not so small; if smallish male, anterior legs black 17.
17. Large hairy male, with hind margins of tergites broadly pallid; antennae very long; anterior legs largely red *rebellis* Ckll.
 Otherwise 18.
18. Male; abdomen dull; postscutellum tuberculate *rudissimus* Ckll.
 Females 19.
19. Very shiny species, with more or less fulvous hair on thorax *leai* Ckll.
 Otherwise 20.
20. Abdomen with narrow white tegumentary bands; eyes not hairy *marginata lucida* Ckll.
 Abdomen without such bands 21.
21. Abdomen highly polished, with rather broad white hair-bands on tergites 2 to 4, interrupted on 2 and 3 *albovittatus* Ckll.
 Abdomen with narrow white hair-bands 22.
 Abdomen without hair-bands 23.
 (Abdomen with bases of tergites very broadly white-pruinose, apices broadly black; hair of head and thorax black and white *microdontus* Ckll.)
22. Larger and more robust; second cubital cell hardly narrowed above; wings brownish *robustus* Ckll.
 Smaller and less robust; second cubital cell strongly narrowed above *advena* Sm.
23. Clypeus dull, very densely punctured; abdomen slightly greenish; postscutellum with a short tooth *opaculus* Ckll.
 Clypeus shining 24.
24. Clypeus polished, with a median raised line *carinatifrons* Ckll.
 Clypeus with no such line 25.
25. Wings brownish; second cubital cell broad at base, greatly contracted above (Lord Howe Island) *philonesus* Ckll.
 Second cubital cell narrow, moderately contracted; middle basitarsus broadened (King George's Sound) *metallescens* Ckll., variety.
 Second cubital cell broad, hardly contracted; sides of abdomen beneath with pure white hair; tibial scopa strongly contrasting, black and white *metallescens* Ckll.

The following table is based on specimens in the American Museum of Natural History, received from Dr. H. Friese:

- Abdomen red; male *rufaeneus* Friese.
 Abdomen not red 1.
1. Thorax metallic 2.
 Thorax black 7.

2. Mesothorax and scutellum with very bright red hair; thorax dark bluish green; female *friesei* Ckll.
 Mesothorax and scutellum without such red hair, or if quite red, abdomen yellowish green 3.
3. Abdomen with golden and rosy tints; female *semipurpureus* Ckll.
 Abdomen with strong purple tints 4.
 Abdomen green 5.
4. Male; flagellum red beneath *festivus* Ckll.
 Females *plumosus* Smith.
5. Larger, about 10 mm. long, with red hair on thorax above. *mimulus* Ckll.
 Smaller, or hair of thorax above not distinctly red 6.
6. Female; scutellum green *melbournensis* Ckll.
 Male (Ararat, V.) *melbournensis* Ckll.
7. Eyes hairy; legs red; male *Trichocolletes venustus* Smith.
 Eyes hairy; legs black; female *thornleighensis* Ckll.
 Eyes not hairy 8.
8. Stigma obsolete 9.
 Stigma well developed 11.
9. Abdomen with narrow whitish bands (Sydney, N.S.W.)
 *marginatus* Smith.
 Abdomen with hind margins of tergites broadly dark reddish 10.
10. Female (Adelaide) *crassipes* Smith.
 Males (Sydney and Melbourne) *crassipes* Smith.
11. Legs greatly modified; hind basitarsi with a prominent angle; head and thorax covered with long bright fulvous hair; male
 *Goniocolletes morsus* Ckll.
 Legs ordinary 12.
12. Head and thorax with long fulvous hair; hind margins of tergites red; female (Waikana Bay) *fulvescens* Smith.
 Head and thorax not thus fulvous haired 13.
13. Mesothorax very densely and coarsely punctured; area of metathorax triangular, highly polished; wings dilute brown *ventralis* Friese.
 Mesothorax not thus strongly and coarsely punctured 14.
14. Small, not over 9 mm. long 15.
 much larger 17.
15. Female; femora dark; mesothorax closely punctured *perminutus* Ckll.
 Males; femora red 16.
16. Smaller; abdomen purplish, hardly punctured
 *providellus caeruleus* Ckll.
 Larger; abdomen not purplish, distinctly punctured
 *punctiventris* Friese.
17. Scopa of hind tibiae large, light fulvous on outer side; female ("New Holland") *maorium* Ckll.
 Scopa not thus fulvous 18.
18. Smaller, anterior wing 6.7 mm.; abdomen shining blue-green; female *versicolor* Smith.
 Considerably larger 19.
19. Mesothorax dullish, closely punctured, posterior disc shining
 *chalybeatus* Erichson.
 Mesothorax polished, shining *franki* Ckll.

Paracolletes abdominalis Smith.

Champion Bay, W.A. Abdomen red; first recurrent nervure joins second cubital cell slightly before its middle; basal nervure meeting nervulus on outer side. Type in British Museum. Among the species which Smith placed in *Paracolletes*, the second recurrent nervure joins third cubital cell very near its end in *crassipes*, *abdominalis* and *fervidus*; far beyond middle, but some distance from end in *marginatus*; a little beyond middle in *nitidus*.

Paracolletes abnormis Cockerell.

Alexandria, N. Austr. (W. Stalker). Type in British Museum. Male about 6 mm. long; black, with dull white hair, the face and front densely covered with long shining white hair; flagellum pale ferruginous beneath; abdomen without hair-hands. Some specimens have only two cubital cells.

Paracolletes advena (Smith).

Described as *Andrena advena*. Scutellum with black plumosa hair; tergites 2 to 4 with narrow silvery marginal hair-bands; face very broad; stigma subobsolete. The nest is described by Rayment, Jour. Roy. Soc. W. Australia, xvii., p. 161.

Paracolletes albopilosus Rayment.

Perth, W.A. (T. Greaves). Male about 10 mm. long; black, with white hair; thin bands of white hair on bases of tergites 1 to 3; caudal tuft black. Allied to *P. punctatus*, *P. incanescens*, *P. cinereus* and *P. argentifrons*. (Jour. Roy. Soc. W.A., xvi., p. 50.)

Paracolletes albovittatus Cockerell.

Eradu, W.A. (Nicholson). Type in Australian Museum. Female about 9 mm. long; differs from *P. subviridis* by abdomen not at all greenish, and the hair-bands are much wider than in *P. subviridis* or *P. advena*.

Paracolletes amabilis (Smith).

Queensland. Female with hind tibiae and middle and hind tarsi red (hind tibiae not red in male); clypeus and supraclypeal area black, rest of face and front green. I have considered *Lamprocolletes metallicus* Smith to be the male of *P. amabilis*. This species is much smaller than *P. cupreus* Smith.

Paracolletes amabilis rufipes Cockerell.

Berowra, N.S.W. (T. G. Campbell). Male less than 8 mm. long; head dark blue green, but middle of front yellowish green, clypeus black; antennae entirely black; anterior and middle knees, hind femora, and all the tibiae and tarsi deep chestnut red.

Paracolletes andreniformis Cockerell.

Yallingup, W.A. (Turner). Type in British Museum. Female about 13 mm. long; robust, black, with black and white hair; thorax with white hair in front and behind, at sides and beneath, but mesothorax (except anteriorly) and scutellum with thin black hair; tergites 2 to 4 with interrupted white hair bands.

Paracolletes antennatus (Smith).

Swan River, W.A. Type in British Museum. Male flagellum orange, largely blackened above, last joint all black, shaped like an incisor tooth, with one surface shining; depressed margins of tergites hyaline. Specimens

have been taken on Swan River in recent years by Newman and Glauert, as recorded by Rayment.

Paracolletes apicalis Cockerell.

Swan River, W.A. (J. S. Clark). Female about 8 mm. long, slender for a female; head, thorax, legs and antennae black; abdomen largely chestnut red; apical plate very broad, red in middle.

Paracolletes argentifrons (Smith).

Swan River, W.A. Larger than *P. nanus*, face covered with white hair, dorsum of thorax with black hair; first recurrent nervure joining second cubital cell not far from base.

Paracolletes atronitens Cockerell.

Yallingup, W.A. (R. Turner). Type in British Museum. Male about 10 mm. long; allied to *P. chalybeatus* and *P. obscurus*. Area of metathorax with a basal depressed transversely striated band, limited by a transverse ridge. No hair-bands on abdomen.

Paracolletes aurescens Cockerell.

Bribie Is., Q. (Hacker). Male about 11 mm. long; allied to *P. colletellus*, but much longer. The long flagellum (which is not moniliform) is light fulvo-ferruginous beneath.

Paracolletes aurifrons (Smith).

Adelaide, S.A. Type in British Museum. Abdomen hairy, the margins of the tergites not obviously pallid; first recurrent nervure joining second cubital cell far before the middle.

Paracolletes bicolor (Smith).

Swan River, W.A. Head and thorax green; abdomen deep blue; hind legs partly red. A variety is described in Trans. Amer. Ent. Soc., xxxvi., p. 201. It has the vertex and mesothorax strongly green; legs almost without red. See also Ann. Mag. N. Hist., July, 1914, p. 47, concerning the variation of this species.

Paracolletes bicristatus Cockerell.

Tooloom, N.S.W. (Hacker). Type in Queensland Museum. Female about 8 mm. long. Known by the bands of pale fulvous or whitish hair on each side of scutellum. Wings hyaline; stigma large, dark reddish.

Paracolletes bimaculatus (Smith).

W. Australia, the type from Swan River. Abdomen chestnut red, with a large round black spot on each side of second tergite. For additional details, see Rayment, Journ. Roy. Soc. W. Austr., xvii., p. 160, and Cockerell, Ann. Mag. Nat. Hist., November, 1905, p. 478, and July, 1914, p. 47.

Paracolletes boroniae Cockerell.

Birkdale, near Brisbane (Hacker). Visits flowers of *Boronia*. Female about 11 mm. long; resembles *P. viridicinctus*, but the abdomen is quite a different shade of green, a quite brilliant peacock green, with a rather satiny gloss.

Paracolletes brevicornis (Smith).

Moreton Bay, Q. Type in British Museum. Described as a *Tetralonia*, but it is very close to *P. rebellis* Ckll. Male with red hair on face; knees, tibiae and tarsi red; flagellum crenulate. See Ann. Mag. Nat. Hist., August, 1926, pp. 215, 219.

Paracolletes caeruleotinctus Cockerell.

Mackay, Q. (Turner). Type in British Museum.

Also at Kuranda and Brisbane. Male about 9 mm. long; known by the narrow, brilliantly coloured (blue green, with purple tints) and strongly punctured abdomen. A variety is described in Trans. Amer. Ent. Soc., xxxvi., p. 204. It was taken at Kuranda.

Paracolletes callander Cockerell.

Yallingup, W.A. (Turner). Type in British Museum.

Also at Perth. Female about 16 mm. long; male about 13.5 mm. Allied to *P. nigrocinctus*, but distinguished by the large size and bright colours. The sexes look very different.

Paracolletes callurus Cockerell.

Yallingup, W.A. (Turner). Type in British Museum. Female 10 mm. long. Distinguished from *P. turneri* and *P. elegans* by the black abdomen. Last two tergites densely covered with bright ferruginous hair.

Paracolletes callurus nigrrior Cockerell.

King George's Sound, W.A. (Masters). Female broader; anterior part of thorax above without a white collar or band; wings less dusky; anterior tibiae deep chestnut red; end of abdomen with bright red hair. Type in Australian Museum.

Paracolletes carinatifrons Cockerell.

Sydney, N.S.W. (C. Gibbons). Type in Australian Museum. Close to *P. perpolitus*, but differs in wings. Female, length about 10.4 mm.; black, with the depressed hind margins of tergites lively rufous, and last antennal joint bright ferruginous below.

Paracolletes carinatulus Cockerell.

Mackay, Q. (Turner). Type in British Museum. Male about 8 mm. long.

Also in N.S.W. Variation, see Psyche, 1930, p. 151. Head, thorax and abdomen olive green, or thorax blue-green. Area of metathorax with a sharp transverse keel.

Paracolletes carinatus (Smith).

Described from "New Holland," but known from Queensland to Tasmania. For the characters, see the key. Specimens are in the Australian Museum.

Paracolletes castaneipes Cockerell.

Yallingup, W.A. (Turner). Type in British Museum. Male about 10 mm. long; black, with the tibiae and tarsi deep chestnut red; wings dusky; abdomen without hair-bands. Apparently related to *P. rudis*, but not its male, as the sculpture of the mesothorax is quite different.

Paracolletes chalceus Friese.

Sydney, N.S.W. Female 13-14 mm. long; black, with black-brown hair; head broader than long; area of metathorax smooth and shining; first two tergites strongly shining; tibial scopa black; wings yellowish. Said to resemble in appearance the European *Panurgus banksianus* Kirby.

Paracolletes chalcurus Cockerell.

Cunderlin, W.A. (R. Illidge). Female a little over 12 mm. long; head and thorax green, abdomen brassy yellow and crimson. Possibly the female of *P. roseoviridis*, described from a male about 8 mm. long.

Paracolletes chalybeatus (Erichson).

Described as an *Andrena*. It is at least very near to *P. providus*, and appears to me identical. Tasmania. See Mem. Queensland Museum, ix., 1929, p. 311; Rec. Austral. Museum, xvii., p. 206. This is the type of *Lamprocolletes*, distinguished from typical *Paracolletes* by the well developed stigma.

Paracolletes chrysostomus Cockerell.

Eradu, W.A. (Nicholson). Type in Australian Museum. One of the forms which could as well be placed in *Anthoglossa*. Male about 12 mm. long; scape greatly swollen and light ferruginous. For a full description, and discussion of the *Anthoglossa-Paracolletes* problem, see Records Australian Museum, xvii. (1929), p. 202.

Paracolletes cinereus (Smith).

South Australia. In my 1905 table it falls next to *P. obscurus*, being separated by the distance from first recurrent nervure to second intercubitus, little more than distance from second recurrent to end of third cubital cell; legs dark red.

Paracolletes clypeatus Cockerell.

Yallingup, W.A. (Turner). Type in British Museum. Male about 10 mm. long, female 11 mm. Both sexes with clypeus and supraclypeal area exposed, nearly bare, flattened, longitudinally striate, and with a median keel. Hind tibiae of female with a very large, entirely black, scopa.

Paracolletes colletellus Cockerell.

Adelaide River, N.T. (J. J. Walker). Type in British Museum. Male 8 mm. long; black, very pubescent, the face densely covered with light yellow hair; wings hyaline, stigma and nervures ferruginous; first recurrent nervure joining second cubital cell at its extreme base. Looks like a small *Colletes*.

Paracolletes convictus (Cockerell).

Described as *Tetralonia*. Type in British Museum. Male antennae much longer than in *P. brevicornis*; flagellum strongly crenulated, ferruginous beneath; scutellum with a median depression, but no distinct bosses (bigibbose, with a pair of bosses, in *P. brevicornis*). The only locality given is Australia.

Paracolletes crassipes Smith.

Swan River. The type of *Paracolletes*.

P. australis Friese, is a synonym. Smith described the female; the male (taken by Froggatt in New South Wales) is described in Ann. Mag. Nat. Hist., April, 1912, p. 378. It has a thick flagellum, strongly crenulated beneath; tibiae and tarsi ferruginous.

Paracolletes crassipes leptospermi Cockerell.

Mackay, Q. (Turner). Type in British Museum. Male about 12 mm. long; smaller than true *crassipes*, with light hair on posterior edge of hind tibiae (fuscous in *crassipes*). The first tergite is back, with the hind margin broadly pale reddish; the others are dark greenish, with the hind margins broadly ferruginous.

Paracolletes cristatus (Smith).

"New Holland," in the W. W. Saunders collection. Type in the Hope Museum at Oxford. Scutellum and postscutellum with long bright red hair; area of metathorax with a median transverse ridge, below which are transverse striae.

Paracolletes cupreus (Smith).

Adelaide, S.A. Type in British Museum. Head and thorax green; abdomen with strong crimson tints; hind tibiae and middle and hind tarsi red; flagellum ferruginous beneath.

Paracolletes cyaneorufus Cockerell.

Bribie Is., Q. (Hacker). Female about 7.5 mm. long; close to *P. rufoaeneus*, but considerably smaller. *Paracolletes* of this group show a certain relationship with *Euryglossidia*.

Paracolletes dentatus (Rayment).

Moorra, W.A. (L. J. Newman). Female about 14 mm. long; head blue, with black clypeus; mesothorax black, blue anteriorly; scutellum blue; post-scutellum with a long dentate concave process; abdomen dorsally iridescent shining green, with coppery and blue tints. Type of *Nodocolletes* Rayment.

Paracolletes dentiger Cockerell.

W.A. (Preiss). Type in Berlin Museum. Taken by Turner at Yallingup. Female about 12 mm. long; deep purplish-blue, strongly punctured, the pubescence black and white; postscutellum with a stout spine. The male is described in Ann. Mag. Nat. Hist., July, 1914, p. 41.

Paracolletes diodontus Cockerell.

Eradu, W.A. (Nicholson). Type in Australian Museum. Female about 13 mm. long; related to *P. vigilans*, but separated by the metallic head, green-banded instead of green abdomen, flagellum not fulvous beneath, and darker wings. Postscutellum with a very large median bidentate process.

Paracolletes elegans (Smith).

Adelaide, S.A. Head, thorax and abdomen dark blue; apical tuft of abdomen bright orange-fulvous; area of metathorax shining.

Paracolletes erythrurus Cockerell.

Yallingup, W.A. (Turner). Type in British Museum. Female about 12 mm. long; head and thorax black, abdomen bright but not shining ferruginous; wings unusually short, strongly dusky. Male with labrum, mandibles (except apical margin) and clypeus cream colour; face covered with bright golden-fulvous hair. Allied to *P. bimaculatus*, and superficially like *P. fimbriatinus*.

Paracolletes eucalypti Cockerell.

Mt. Yule, Healsville, V. (R. Kelly). Type in British Museum. Male about 10 mm. long.

Also at Beaconsfield, V. (F. E. Wilson). Female; see Mem. Queensland Museum, ix. (1929), p. 308. A metallic species, resembling *P. castaneipes* as to the legs, but the male has much smaller eyes and broader face. Also related to *P. subviridis*, but abdomen differently coloured.

Paracolletes eugeniarum Cockerell.

Mackay, Q. (Turner). Type in British Museum. Female about 11 mm. long; unusually narrow; black, with the hind margins of the tergites depressed, broadly whitish hyaline, the part just before the depression reddened; flagellum red beneath. Hind spur of hind tibiae with long, strong teeth, very different from the numerous slender spines of *P. platycephalus*.

Paracolletes euphenax Cockerell.

Brisbane, Q. (Hacker). Superficially resembles *P. incanescens*.

Goes south to Sandringham, V. Rayment states that this is the male of *P. advena* Sm.; he has taken the sexes mating. (Journ. Roy. Soc. W. Aust., xvii., p. 161). In my original description I referred to this as a possibility.

Paracolletes facialis Cockerell.

Coolangatta, Q. (A. J. Turner). Male nearly 9 mm. long; resembles *P. nitidulus* and *P. regalis*. The abdomen is very dark purplish. Goes south to Sandringham, V.

Paracolletes fallax Cockerell.

Bribie Is., Q. (Hacker). Female about 9 mm. long; black, punctured, looking like an *Halictus*, and with the basal nervure strongly arched. Related to *P. punctatus*, but wings strongly dusky, nervures and stigma piceous; marginal cell obliquely truncate at end.

Paracolletes ferricornis Cockerell.

Hermannsburg, Cent. Aust. (H. J. Hillier). Type in British Museum. Male a little over 11 mm. In the colour of the antennae, etc., it is curiously parallel with *P. fimbriatinus hillieri*, from the same locality. Flagellum long, entirely very bright ferruginous.

Paracolletes fervidus Smith.

"New Holland." Pubescence fulvous; flagellum fulvous beneath (according to Smith; the specimen marked type at British Museum has dark antennae); abdomen slightly metallic.

Paracolletes fervidus subdolosus Cockerell.

Cheltenham, V. (French). Female a little over 12 mm. long. Perhaps a distinct species; for a discussion of the characters of this and *P. fervidus* see Ann. Mag. Nat. Hist., March, 1913, p. 279. There is much fuscous hair on thorax above in *subdolosus*.

Paracolletes festivus Cockerell.

Sydney, N.S.W. (Frank). Type in Amer. Mus. Nat. History. Male, near *P. plumosus*. Amer. Mus. Novitates, 343 (1929). Flagellum ferruginous beneath; legs chestnut red; abdomen splendid purple-blue, margins of tergites reddened.

Paracolletes fimbriatinus Cockerell.

Victoria (C. French). Type male in British Museum.

The female was taken at Stanthorpe, Q.; Mem. Queensland Mus., ix. (1929), p. 306. The thorax has rich fulvous hair above; the clypeus is very coarsely rugose. (In the somewhat related *P. gallipes* the clypeus has a median keel, wanting in *P. fimbriatinus*.)

Paracolletes fimbriatinus hillieri Cockerell.

Hermannsburg, Cent. Austr. (H. J. Hillier). Type in British Museum. Male about 8 mm. long; hair of head and thorax cream colour; flagellum bright ferruginous above and beneath; abdomen more shining, the hair on apical margins of tergites wholly pale.

Paracolletes fimbriatus (Smith).

Australia, as labelled in British Museum; Smith gives no locality. Abdomen red, like that of *P. rubellus*; a dense black apical tuft; area of metathorax with a strong transverse keel.

Paracolletes flavomaculatus Cockerell.

Type in British Museum, from "Australia," but known from several localities in Queensland. Dodd and Wheeler took it at Kuranda. The female (slightly over 10 mm. long) is described in Trans. Amer. Ent. Soc., xxxvi, p. 201. The male is about 9 mm. long; scutellum with yellow hair.

Paracolletes franki Cockerell.

Adelaide, S.A. (Frank). Type in American Museum of Nat. History. Female about 12 mm. long. Amer. Mus. Novitates, 343 (1929). Black, robust; flagellum red beneath except at base; mesothorax polished; wings brownish hyaline.

Paracolletes frederici Cockerell.

W. Australia. Male abdomen red, very hairy at base, and with thin white hair-bands; no spots on sides of second tergite; legs entirely red, front femora with very long hair beneath; antennae red, flagellum blackish above; face covered with long light fulvous hair. This is *Lamprocolletes rubellus* Smith, not *Dasycolletes rubellus* Smith.

Paracolletes friesei Cockerell.

King George's Sound, W.A. Type in Queensland Museum. Female about 11 mm. long. This is *P. fervidus* Friese, and is known especially by the bright red thoracic hair. (Mem. Queensland Museum, ix., p. 306.)

Paracolletes frontalis (Smith).

"New Holland." Black, the abdomen submetallic. Male with bright ferruginous mandibles and face densely covered with silvery white hair. Tibial scopa of female white, "having a beautiful golden reflection above." There are specimens in the British Museum marked "probably *frontalis*," but they seem not to be that species.

Paracolletes fulvus (Smith).

Queensland. The female falls in a little group with *P. ruficornis* and *P. waterhousei*, the abdomen having abundant fulvous hair; but it is larger than these, with red legs, and plumose scopa on hind tibia blackish.

Paracolletes gallipes Cockerell.

Poonarunna, S.A. Female about 11 mm. long; rather slender, black and clear ferruginous red. Known by the pointed wings and unusual venation, marginal cell subtruncate at apex; second cubital cell nearly square, receiving first recurrent nervure very near base. Legs clear ferruginous.

Paracolletes hackeri Cockerell.

Brisbane, Q. (Hacker). Female 10 mm. long; head, thorax and legs black, first three tergites dark blue. South to Sydney; see Psyche, 1930, p. 150. Allied to *P. providus*.

Paracolletes halictiformis Cockerell.

Yallingup, W.A. (Turner). Type in British Museum. Female about 8 mm. long, black. Probably the female of *P. minutus* Ckll. It looks like an *Halictus*. Smaller than *P. sigillatus*, with much more closely punctured mesothorax.

Paracolletes helichrysi Cockerell.

Mt. Tambourine, Q. (Hacker). Female 7 mm. long; robust, black, the hind margins of tergites broadly fusco-testaceous; tegulae black; wings

hyaline, faintly dusky at apex. Rather like *P. halictiformis* and *P. sigillatus*, but quite distinct. (Mem. Queensland Museum, vi., 1918, p. 112.)

Paracolletes helmsi Cockerell.

Kosciusko, N.S.W., 5,000 ft. (R. Helms). Type in Australian Museum. Male about 12 mm. long, slender, head and thorax black, abdomen blue-green. Something like a large edition of *P. chalybeatus*, with much dark hair on head and thorax.

Paracolletes hobartensis Cockerell.

Hobart, Tasmania (J. J. Walker). Type in British Museum. Female 12 mm. long; black, with black and greyish-white hair; abdomen wholly without hair-bands. Tegulae black.

Paracolletes humerosus (Smith).

Melbourne, V. A large patch of short moss-like ochraceous hair on each side of mesothorax.

Paracolletes humerosus cyanurus Cockerell.

Oakley, V. (French). Female a little over 9 mm. long; patches of hair on mesothorax white, with a faint creamy tint, but hair of thoracic dorsum otherwise black; abdomen shining, distinctly purplish.

Paracolletes ibex Cockerell.

Windsor, V. (French). Male 8 mm. long; slender, black; flagellum suggesting the horns of an ibex. The legs are black.

Paracolletes incanescens Cockerell.

Stradbroke Is., Q. (Hacker). Female about 11 mm. long; black, head and thorax very hairy. Male 9 mm., face with thin, white hair, flagellum entirely black, moniliform. Related to *P. punctatus* and *P. obscurus*. The male resembles *P. thornleighensis*.

Paracolletes incomptus Cockerell.

Mundaring, W.A. (R. Illidge). Female about 9 mm. long; near to *P. plebeius*, but separated by the dark flagellum, area of metathorax shining (dull in *plebeius*); and from *P. recusus* by the brownish wings, and scutellum with no median sulcus.

Paracolletes irroratus (Smith).

Victoria. There is a large patch of short moss-like bright red or yellow hair on each side of mesothorax. *P. humerosus* Smith is the same species. See Ann. Mag. Nat. Hist., June, 1926, p. 661. The male is more slender; face densely covered with silky brownish-white hair; antennae long, entirely dark. The type of *P. irroratus* is in the Hope Museum at Oxford.

Paracolletes launcestonensis Cockerell.

Launceston, T. (Littler). Female about 8 mm. long; head, thorax and legs black, the small joints of tarsi reddish; abdomen very dark greenish, with hind margins of first two tergites appearing narrowly ferruginous; flagellum wholly dark; tegulae bright apricot colour; wings fuliginous, stigma large and black.

Paracolletes leai Cockerell.

Ulverstone, T. (Arthur M. Lea). Female about 12 mm. long; slender, black, the abdomen obscurely metallic, the fifth tergite entirely greenish; wings hyaline. Also King Island. Differs from *P. versicolor* by the ridged clypeus, and very dark smooth (not silky) abdomen.

Paracolletes latifrons Cockerell.

Coolangatta, Q. Female about 11.5 mm. long; black, robust, very broad, with rather thin dull white hair; vertex with long black hair; posterior middle of mesothorax, and disc of scutellum, with short black hair. Probably nearest to *P. advena*, which has a narrower abdomen with more distinct hair-bands.

Paracolletes maculatus Rayment.

Sandringham, V. (Rayment). Female about 10 mm. long, male 9 mm. Allied to *P. platycephalus*, *P. rufoaeneus* and *P. bimaculatus*. Rayment gives a plate of structural details (Proc. Roy. Soc. Victoria, xliii., p. 49).

Paracolletes maorium Cockerell.

Described from New Zealand, and probably not Australian, but a specimen seen labelled "New Holland."

Paracolletes marginatus Smith.

Queensland to Tasmania. It will be recognised by the characters given in the key. In Rec. Australian Museum, xvii., p. 202, its generic position is discussed, and it is concluded that it cannot be separated generically from *Anthoglossa sericea* Smith. Concerning its relation to *Trichocolletes venustus*, see Ann. Mag. Nat. Hist., March, 1913, p. 274.

Paracolletes marginatus lucidus Cockerell.

Geraldton, W.A. (Nicholson). Type in Australian Museum. Female with caudal tuft fulvous, the abdominal bands white; the clypeus highly polished, with a few scattered punctures, its apical margin reddish.

Paracolletes maximus Cockerell.

Victoria (Hill). Type in American Museum of Natural History. Male about 17 mm. long; black, robust; thorax above with bright red moss-like hair. It is one of the species which might as well be placed in *Anthoglossa*, as that genus is now understood. (Amer. Mus. Novitates, 346, p. 9.).

Paracolletes megachalceus Cockerell.

Clarence River, N.S.W. (Wilson). Female about 14 mm. long; robust; head and thorax black, densely hairy, abdomen brassy green, hind margin of second and following tergites broadly pale reddish; postscutellum with a median tubercle. Related to *P. dentiger*. There is a prominent tubercle on the supraclypeal area. The Australian Museum has it from Raymond Terrace, near Newcastle, N.S.W.

Paracolletes megadontus Cockerell.

Caloundra, Q. (Hacker). Female 10 mm. long; close to *P. dentiger*, but smaller; area of metathorax smooth and shining, without transverse striae; hind legs not metallic; abdomen shining and finely punctured. Also on Stradbroke and Bribie Islands.

Paracolletes melanurus Cockerell.

Tooloom, N.S.W. (Hacker). Female about 6.8 mm. long; rather like *P. nitidulus*, but venation quite different. Marginal cell very long, with narrow end; second cubital cell small, narrowed above, receiving first recurrent nervure a little beyond middle; first cubital cell longer than the other two together; stigma large. Face very broad.

Paracolletes melbournensis Cockerell.

Melbourne, V. Type in Berlin Museum. Female about 11 mm. long; olive-green, the clypeus and supraclypeal area strongly punctured, black,

with crimson and golden tints at sides and in vicinity of the suture between them. Known from *P. mimulus* by scopa of hind tibia with a dark fuscous band extending its whole length; vertex with dark hair.

Paracolletes melbournensis clarki Cockerell.

Perth, W.A. (J. Clark). Type in Queensland Museum. Female about 11 mm. long; clypeus highly polished; thorax above with rather pale grey hair; black on disc of mesothorax and scutellum. See also Rayment, Journ. Roy. Soc. W. Australia, xvii., p. 160.

Paracolletes metallescens Cockerell.

Yallingup, W.A. (Turner). Type in British Museum. Female about 11 mm. long, male 9 mm. Differs from *P. versicolor* by the darker abdomen, with pure white instead of yellow hair beneath. *P. providus* has the abdomen bluer and more shining. The male *P. metallescens* has the flagellum strongly crenulated beneath, recalling *P. ibex*.

Paracolletes microdontus Cockerell.

Perth, W.A. (J. Clark). Type in Queensland Museum. Female about 10 mm. long. Black, with no metallic tints; clypeus moderately convex, shining, with strong but not very dense punctures, the disc somewhat flattened; postscutellum with a small but distinct tubercle. (Mem. Queensland Museum, ix., 1929, p. 309.).

Paracolletes mimulus Cockerell.

Victoria (C. French). Type in British Museum. Female about 10 mm. long, very near to *P. melbournensis*, but smaller and less robust, with tibial scopa of hind legs white in front, yellowish behind; stigma and nervures clearer ferruginous; abdomen with golden tints.

Paracolletes minutus Cockerell.

Yallingup, W.A. (Turner). Type in British Museum. Male a little over 6 mm. long; known from *P. punctatus* by the closely punctured thorax, colour of antennae (flagellum obscure brown beneath) and fuscous nervures.

Paracolletes moniliformis Cockerell.

Yallingup, W.A. (Turner). Type in British Museum. Male 9 mm. long; closely allied to *P. ibex*, with similar flagellum, but larger, with brownish wings and dark stigma.

Paracolletes moretonianus Cockerell.

Moreton Bay. Male about 11 mm. long, with the aspect of *nomia semi-aurea* Ckll. Legs red.

Paracolletes nanus (Smith).

W. Australia. Female black and shining, expanse of wings about 11 mm.; mesothorax little hairy; first recurrent nervure joining second cubital cell about its middle (not far from its base in the larger *P. argentifrons*).

Paracolletes nicholsoni Cockerell.

Kojarena, Eradu and Geraldton (Nicholson). Type in Australian Museum. Female nearly 7 mm. long; black, shining, with thin erect white hair. Known from *P. nanus* by the dark antennae, and apical margins of tergites not testaceous.

Paracolletes nigrutilus Cockerell.

Yallingup, W.A. (Turner). Type in British Museum. Female about 7 mm. long; known by the small size, dusky wings and especially the truncate marginal cell. The clypeus is quite convex and prominent. There is black hair on vertex.

Paracolletes nigrocinctus Cockerell.

Yallingup, W.A. (Turner). Type in British Museum. Male 11-12 mm. long.

Also at Kojarena, W.A.

The abdomen is dull red, tergites 1 to 5 having narrow subapical black bands, the margin beyond subhyaline, and on tergites 2 to 5 having a thin fringe of short silvery-white hairs.

Paracolletes nigroclypeatus Cockerell.

Victoria (C. French). Type in British Museum. Female 12 mm. long; close to *P. carinatus*, but larger, with the clypeus black, and fringe on fourth sternite white. Flagellum bright ferruginous beneath.

Paracolletes nigroclypeatus hardyi Cockerell.

Perth, W.A. (Hardy). Type in Queensland Museum. Female with abdomen black, with a steel blue band on each tergite before the marginal depression. It presents the unusual condition of having the head and thorax more metallic than the abdomen.

Paracolletes nigrofulvus Cockerell.

Shoalhaven, N.S.W. (Froggatt). Male, length about 11.5 mm.; black, with the hind margins of tergites, and the hind tarsi, obscurely ferruginous; flagellum strongly crenulated beneath; wings dusky.

Paracolletes nitidulus Cockerell.

Yallingup, W.A. (Turner). Type in British Museum. Female about 9.5 to 10 mm. long, male about 8.5 mm. An ordinary looking species, but entirely unique by the large black spot at end of marginal nervure of hind wing of male. In the female this is represented by a much smaller, elongated spot. Wings brownish, with large stigma.

Paracolletes nitidus Smith.

N.W. Coast of Australia. Female abdomen with a distinct bluish lustre; violet tints on mesothorax; basal nervure falling a long way short of nervulus; first recurrent nervure joining second cubital cell about or slightly before its middle.

Paracolletes nomadiformis Cockerell.

Kuranda, Q. (Dodd). Male about 6.5 mm. long; abdomen clavate, with a narrowed base, giving it the appearance of a *Nomada*. Tubercles covered with fulvous hair, and also scutellum and postscutellum, forming a large orange-fulvous patch, as in *P. flavomaculatus*.

Paracolletes nomiaeformis Cockerell.

Charleville, Q. (A. J. Turner). Male about 8 mm. long; very near *P. sigillatus*, but smaller, face much narrower, and mesothorax much more punctured. It looks like a *Nomia*. (Mem. Queensland Museum, x., p. 48.)

Paracolletes obscuripennis Cockerell.

Tasmania. Type in British Museum. Male about 9 mm. long; face densely covered with light yellow hair, at sides of upper part of front it is black; wings rather light fuliginous; stigma large.

Paracolletes obscurus (Smith).

Tasmania. Distance from first recurrent nervure to second intercubitus more than twice distance from second recurrent to end of third cubital cell. For a discussion of characters, see Mem. Queensland Museum, ix. (1929), p. 310. Variation, Mem. Queensland Museum, vii., p. 92.

Paracolletes opaculus Cockerell.

Geraldton, W.A. (Nicholson). Type in Australian Museum. Female about 9 mm. long. Known from *P. tuberculatus* by the rough opaque clypeus. Also related to *P. obscuripennis*.

Paracolletes pachyodontus Cockerell.

Yallingup, W.A. (Turner). Type in British Museum. Male 8 to 9 mm. long; black, with red mandibles, and the abdomen with approximately lateral thirds of first three tergites, as well as apical bands on the first four, deep chestnut red. Somewhat related to *P. rhodopus*.

Paracolletes pavonellus Cockerell.

King George's Sound, W.A. (Masters). Type in Australian Museum. Female about 9.3 mm. long. Known from *P. viridicinctus* by the peacock green abdomen with dull sericeous surface, the apical depressions of tergites black. The abdomen resembles that of the much larger *P. boroniae*.

Paracolletes perfasciatus Cockerell.

Western Australia. Type in British Museum. Female nearly 12 mm. long; black, the abdomen narrow, depressed, very shiny, with broad entire sordid white hair-bands. Stigma and nervures black.

Paracolletes perminutus Cockerell.

Fremantle, W.A. (Frank). Type in Amer. Mus. Nat. History. Female about 7 mm. long. This is *Lamprocolletes minutus* Friese. The first tergite is smooth and highly polished, this and the very pale dull yellowish stigma, with dark border, separating it from *P. minutus* Ckll. (Amer. Mus. Novitates, 343, 1929, p. 2.).

Paracolletes perpolitus Cockerell.

Yallingup, W.A. (Turner). Type in British Museum. Male about 9.5 mm. long; very close to *P. incanescens*, which has the same type of clypeus (with bare flattened polished disc), but flagellum red at end, abdomen more finely punctured, and third cubital cell different.

Paracolletes phanerodontus Cockerell.

King George's Sound, W.A. (Masters). Type in Australian Museum. Female 14.3 mm. long; abdomen steel blue. Related to *P. subvigilans*, but abdomen differently coloured and wings much clearer. The smooth polished abdomen separates it from *P. dentiger*.

Paracolletes pictus Rayment.

Charleville, Q. (G. F. Hill). Female about 11 mm. long; allied to *P. elegans*. (Proc. Roy. Soc. Victoria, xliii., 1930, p. 47.). I am indebted to Mr. Rayment for a specimen of this beautiful metallic species.

Paracolletes platycephalus Cockerell.

Windsor, V. (C. French). Type in British Museum. Female about 10 mm. long; black, with the abdomen bright ferruginous red; second tergite with a black spot on each side. The dark legs and venation separate it from *P. fimbriatus* and *P. fimbriatinus*. The hind spur of hind tibia is very finely pectinate, with many very slender long spines. The male has hair of head and thorax above ochreous, without fuscous; apex of abdomen with pale golden hair.

Paracolletes plebeius Cockerell.

Bright, V. (H. W. Davey). Female about 10 mm. long; very near *P. providus*, but the head is smaller, the flagellum dusky chestnut red be-

neath, and the dark purplish colour of the abdomen is quite different. The tibial scopa, black above, white beneath, separates it from *P. frontalis*.

Paracolletes plumosellus Cockerell.

"New Holland." Type in British Museum. Male about 7.5 mm. long; head and thorax bluish green; abdomen with a strong purple lustre. Near to *P. plumosus*. Rayment records it from Perth, W.A.

Paracolletes plumosus (Smith).

From W. Australia to Victoria, and north to Queensland. Head and thorax green, abdomen purple; basal nervure meets nervulus; stigma narrow and lanceolate. The male is described, and distinguished from *P. plumosellus*, in Trans. Amer. Ent. Soc., xxxvi., p. 200. See also Rayment, Journ. Roy. Soc. W. Australia, xvi., p. 50. Variation, Mem. Queensland Museum, x., p. 48.

Paracolletes providellus Cockerell.

Type in British Museum, labelled "Australia." Male about 7.5 mm. long; head and thorax shining black; abdomen shining dark bluish green, with the hind margins of the tergites broadly reddish.

Paracolletes providellus bacchalis Cockerell.

Bacchus Marsh, V. (F. L. Billingham). Male a little over 7 mm. long; abdomen with only the faintest greenish tinge; hind tibiae, and basal half of their basitarsi, bright chestnut red; tegulae piceous.

Paracolletes providellus caerulescens Cockerell.

Como, N.S.W. (Froggatt). Type in Amer. Mus. Nat. History. Amer. Mus. Novitates, 343 (1929). Legs all rather dark red, including femora; abdomen shining steel blue, with hind margins of tergites conspicuously dusky reddish. If *P. bacchalis* is considered a distinct species, this is a variety of *bacchalis*.

Paracolletes providus (Smith).

Tasmania to Queensland. Doubtfully distinct from *P. chalybeatus*, and I believe it to be a synonym. Western Australia, recorded by Rayment in Journ. Roy. Soc. W. Australia, xvii., p. 161. The abdomen is broader than in *P. versicolor*. Comparison with *P. hackeri*, Mem. Queensland Museum, x., p. 49.

Paracolletes punctatus (Smith).

Adelaide, S.A. Female with abdomen brown-black; stigma and nervures ferruginous. The basal nervure meets nervulus.

Paracolletes punctiventris Cockerell.

Sydney, N.S.W. Type in Amer. Mus. Nat. History. Male about 8.5 mm. long; near *P. incanescens*, but fifth sternite with a stiff fringe of long pale hair. Amer. Mus. Novitates, 343 (1929). Area of metathorax not transversely striate, as it is in *P. speculiferus* and *P. perpolitus*.

Paracolletes pusillus Cockerell.

Geraldton, W.A. (Nicholson). Type in Australian Museum. Male with the aspect of *P. nicholsoni*, but basal nervure conspicuously less arched, and second cubital cell receiving recurrent nervure almost at its inner corner. Known from *P. scitulus* by the entirely black middle and hind legs, and from *P. minutus* by the dark mandibles.

Paracolletes rebellis Cockerell.

Melbourne, V. (C. French). Type in British Museum.

North to Jindebyne, N.S.W., at 3,000 ft. Legs darker than in *P. brevicornis*. See Ann. Mag. Nat. Hist., August, 1926, p. 218. It resembles *P. crassipes*, but the large triangular area of metathorax is strongly longitudinally sulcate in the middle and finely transversely striate.

Paracolletes recusus Cockerell.

Mt. Tambourine, Q. (Hacker). Female about 10 mm. long; similar to *P. piebeius*, with median sulcus on scutellum and hyaline wings, but antennae black, surface of clypeus polished, and area of metathorax shining. Apical margins of tergites dark greenish.

Paracolletes regalis Cockerell.

Kuranda, Q. (Dodd). Male about 10 mm. long; head and thorax black, abdomen shining deep rich purple, without hair-bands; antennae black; a strong brown cloud in the marginal cell and beyond (in the related *P. recusus* there is no such cloud).

Paracolletes rhodopus Cockerell.

Yallingup, W.A. (Turner). Type in British Museum. Female a little over 13 mm. long; rather robust, black, with the hind tibiae bright ferruginous, with hair of the same colour on outer side; hair of head and thorax abundant; black in the same places as in *P. subvigilans*, otherwise pale ochreous-tinted.

Paracolletes robustus Cockerell.

King George's Sound, W.A. (Masters). Female 12.3 mm. long; resembling *P. tenuicinctus*, but separated by the very broad apical plate of abdomen, which has no median raised line. Wings brownish. Postscutellum with a rather low conical process.

Paracolletes roseoviridis Cockerell.

Western Australia. Type in British Museum. Male about 8 mm. long; allied to *P. carinatus*, but more robust, yellowish green instead of blue green, the abdomen with a rosy suffusion.

Paracolletes rubellus (Smith).

Lower Plenty, S. Australia. Described under *Dasycolletes*. Female abdomen red; hind spur of hind tibiae pectinate with numerous fine long teeth; first recurrent nervure meeting second intercubitus; second recurrent meeting outer intercubitus.

Paracolletes rudis Cockerell.

Swan River, W.A. Type in British Museum. Female about 10 mm. long; black, with the general appearance of *P. worsfoldi*, but lacking the abdominal bands; easily known from *P. obscurus* by the dull mesothorax; the scutellum is dull and roughened, while in *P. worsfoldi* it is shining.

Paracolletes rudissimus Cockerell.

Wyalcatchem, W.A. (Nicholson). Type in Australian Museum. Male about 7.3 mm. long; black, including mandibles, antennae, tegulae and legs; hind margins of tergites rather narrowly shining brown; postscutellum with a distinct but low median tubercle. Looks like a *Nomia*, but is related to *P. rudis*, and may possibly be its male.

Paracolletes rufibasis Cockerell.

Eradu, W.A. (Nicholson). Type in Australian Museum. Male about 12 mm. long; black, with clypeus honey colour (black along lateral sutures); scape clear red; abdomen marked with red. It has a relatively short first

cubital cell, and could be placed in *Anthoglossa*. It also appears related to *Andrenopsis flavorufus*.

Paracolletes ruficornis (Smith).

W. Australia. Area of metathorax large, indistinctly transversely sericeo-striate; flagellum red; face covered with fulvous hair. I have thought that this might be a female, *Gontocolletes*.

Paracolletes rufiventris Friese.

Adelaide. Female 13-14 mm. long; black, with thick fulvous hair; abdomen red, tergites 1 to 3 with a dark mark, tergites 5 and 6 black brown, with dark hair. The wings are dusky.

Paracolletes rufoaeneus Friese.

Adelaide, S.A. (Frank). Very near *P. bimaculatus*. Second cubital cell receiving recurrent nervure not far from its end. Additional details are given in Amer. Mus. Novitates, 343 (1929).

Paracolletes rufus Rayment.

Purnong, S.A. (Fulton). Male about 11 mm. long; head and thorax black, abdomen clear red; face densely covered with long golden hair; wings hyaline. Rayment figures the details of structure, showing the remarkable antennae (Proc. Roy. Soc. Victoria, xliii., p. 53).

Paracolletes scitulus Cockerell.

Brisbane, Q. (Hacker). Male about 8 mm. long; resembles *P. speculiferus*, but easily separated by the clypeus, which is convex and finely punctured; antennae long, not moniliform, flagellum dark brown beneath. There is a superficial resemblance to *P. incanescens*.

Paracolletes semilautus Cockerell.

Type in British Museum, from "Australia." Male about 8 mm. long, black; known by the very broad face, with black hair at sides. Stigma and nervures amber colour. A table to separate this and numerous other species is given in Ann. Mag. Nat. Hist., January, 1906, p. 28.

Paracolletes semilucens Cockerell.

Perth, W.A. (J. Clark). Type in Queensland Museum. Female about 8.5 mm. long; black, small and rather slender, with rather the aspect of a male. Compared with *P. sigillatus*, it is very distinct by the lack of broad hyaline margins to the tergites, the dark hair at apex of abdomen, and the red tegulae.

Paracolletes semipurpureus (Cockerell).

Mackay, Q. (Turner). Type in British Museum. Female about 9.5 mm. long. Described as a race of *P. cupreus*, *Lamprocolletes cupreus* var. *minor* Friese is the same. Variation, see Psyche, 1930, p. 150. The abdomen is much less shining than in the variety *frenchi*.

Paracolletes semipurpureus frenchi Cockerell.

Rutherglen, V. (French). Vertex, thorax above, and tubercles with light orange-fulvous hair; abdomen strongly crimson; anterior and middle basitarsi almost entirely black.

Paracolletes semipurpureus ornatissimus (Cockerell).

Oxley, near Brisbane, Q. (Hacker). Female about 8.5 mm. long; very brilliantly coloured, the abdomen shining but not polished, with peacock green, lilac-purple and crimson tints. The male is also known. Described as a distinct species.

Paracolletes semiviridis Cockerell.

Charleville, Q. (A. J. Turner). Type in Queensland Museum. Male about 8.3 mm. long; head and thorax black, with much outstanding white hair, pale ochreous on thorax above; abdomen dull olive green, hind margins of the tergites very pale testaceous. (Mem. Queensland Museum, x., p. 48.).

Paracolletes sexmaculatus Cockerell.

Yallingup, W.A. (Turner). Type in British Museum. Female 13-14 mm. long; robust, with head, thorax and legs black; abdomen bluish green, with six patches of pure white hair. Male 11-12 mm., much more slender, and the abdomen only very feebly metallic, and not spotted.

Paracolletes sigillatus Cockerell.

S. Australia (from Froggatt's collection). Female 10 mm. long; black, with hind margins of tergites broadly testaceous; postscutellum angularly produced behind, with a small shining tubercle suggesting the seal on the flap of an envelope.

Paracolletes simillimus Cockerell.

Yallingup, W.A. (Turner). Type in British Museum. Male about 10.5 mm. long, resembling *P. metallescens*, but sculpture of abdomen entirely different.

Paracolletes speculariferus Cockerell.

National Park, Q. (Hacker). Male about 9 mm. long; known from *P. perpolitus* by the entirely dark antennae and entirely black front tibiae.

Paracolletes subdentatus (Rayment).

Quairading, W.A. Female about 12 mm. long; head dark blue, with black clypeus; mesothorax black, bluish posteriorly; scutellum bluish; pleura blue, with fuscous hair; postscutellum with a bidentate process; abdomen dorsally green. The area of metathorax has concentric striations. Flagellum fulvous beneath.

Paracolletes subfuscus Cockerell.

Adelaide, S.A. Type in British Museum. Male about 13 mm. long, looking like a large *Colletes*; area of metathorax shining; abdomen hairy.

Paracolletes subvigilans Cockerell.

Yallingup, W.A. (Turner). Type in British Museum. Female 13.5-14 mm. long; the abdomen dark green, the discs of the tergites sometimes almost black, but the broad hind margins always green; postscutellum with an obtuse tubercle.

Paracolletes subviridis Cockerell.

Bridport, T. (Littler). Female 9.5 mm. long; rather slender, apparently black, but on close inspection it is seen that the front, mesothorax (except a large central area) and abdomen are faintly greenish; wings hyaline, not at all reddish. Differs from *P. obscurus* by the black mandibles, tibial scopa beneath white (not yellow), and dull thorax. It is much narrower than *P. advena*.

Paracolletes tenuicinctus Cockerell.

Yallingup, W.A. (Turner). Type in British Museum. Female 12.5-13 mm. long. This proves to be the female of *P. nigrocinctus*. Turner found the sexes together abundantly on *Leptospermum*.

Paracolletes thornleighensis Cockerell.

Thornleigh, N.S.W. (Froggatt). Type in British Museum. Male a little

over 7 mm. long. *Lamprocolletes nigriventris* Friese, also from Thornleigh, is a synonym. The female is described in Ann. Mag. Nat. Hist., July, 1914, p. 42.

Paracolletes tropicalis Cockerell.

Melville Island (G. F. Hill). Female about 6 mm. long; black, with the mandibles and labrum clear red, tegulae ferruginous, hind margins of tergites broadly dark reddish brown. Known by the small size, short dark flagellum, red mandibles and largely red legs. Type in American Museum of Natural History. (Amer. Mus. Novitates, 346, 1929, p. 1.).

Paracolletes truncatulus Cockerell.

Blackwood, N.S.W. (Froggatt). Female about 9 mm. long; head and thorax black, abdomen clear red, with a pyriform black spot on each side of second tergite. Related to *P. rubellus*, but nervures not testaceous and apex of abdomen with neither hair nor tegument dark.

Paracolletes tuberculatus Cockerell.

Cheltenham, V. (French). Female about 11 mm. long, male 10 mm.; postscutellum with an obtuse median tubercle or very prominent angle. Except for the character of the postscutellum, allied to the group of *P. versicolor*.

Paracolletes tuberculatus insularis Cockerell.

Stradbroke Is., Q. (Hacker).

Also on Bribie Island. A little smaller and less robust; mesothorax more shining and less densely punctured; area of metathorax with the transverse striae feeble, scarcely evident; thorax above with some dark hair; hind tibial scopa with black hair behind to apex. This is based on the female.

Paracolletes turneri Cockerell.

Mackay, Q. (Turner). Type in British Museum. Female about 11 mm. long; brilliant blue and green, with the caudal tuft bright orange fulvous. Allied to *P. elegans*.

Paracolletes velutinus Cockerell.

Eradu, W.A. (Nicholson). Type in Australian Museum. Male about 11 mm. long; black, slender, wings unusually short; flagellum clear ferruginous beneath.

Paracolletes ventralis Friese.

Sydney, N.S.W. (Frank). ♀ about 12.5 mm. long, black, without metallic colours. Very briefly described by Friese, but a full description is given in Amer. Mus. Novitates, 343 (1929).

Paracolletes versicolor (Smith).

Adelaide, S.A., to Mt. Wellington, T.; and *P. spatulatus* Cockerell, taken by Froggatt at Blackheath, N.S.W., is the same species. *P. spatulatus* was described from a male, slightly over 8 mm. long; it is broad, with rather the shape of a female.

Paracolletes vigilans (Smith).

Swan River, W.A. Abdomen strongly green; area of metathorax smooth and shining; postscutellum with a large bidentate process. It is larger than *P. metallicus* (being over 13 mm. long) and has darker wings. As to the process on postscutellum (overlooked by Smith), see Trans. Amer. Ent. Soc., xxxvi, p. 199.

Paracolletes viridicinctus Cockerell.

Tasmania. Type in British Museum. Female a little over 8 mm. long; head and thorax black; abdomen black with the depressed hind margins of the tergites brassy green. Antennae black.

Paracolletes vitrifrons (Smith).

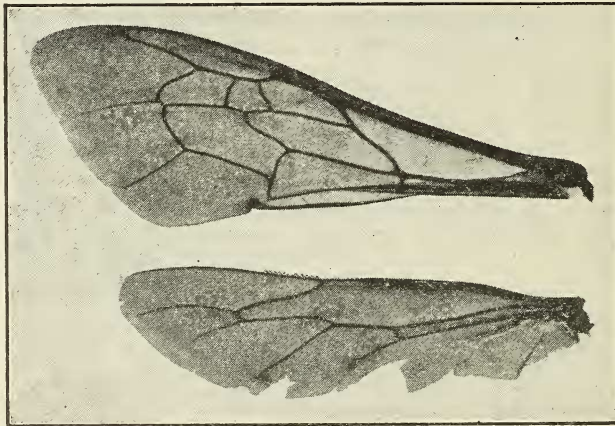
Swan River, W.A. Male with only two cubital cells; stigma large; clypeus covered with silvery hair; supraclypeal area nude, shining brassy.

Paracolletes waterhousei Cockerell.

Victoria. Differs from *P. ruficornis* Sm. by the area of metathorax smaller, shining, with a beaded margin, and flagellum not red. It is smaller than *P. fulvus*. There is a strong resemblance to the New Zealand *P. fulvescens* (Smith); see Ann. Mag. Nat. Hist., August, 1926, p. 218.

Paracolletes worsfoldi Cockerell.

W. Australia (C. M. Worsfold). Type in British Museum. Female about 10.5 mm. long. Also at King George's Sound. Best regarded as a subspecies of *P. advena*; see Mem. Queensland Museum, ix. (1929), p. 308. The shining scutellum distinguishes it from *P. rudis*.



Wings of *Tricholletes venustus* Smith (Sydney, N.S.W.).
Photographed by J. G. Pratt, U.S. National Museum.